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AN EVALUATION OF METHODS USED FOR PROGRAMME ASSIGNMENT
IN EDMONTON'S CONTINUOUS PROGRESS PLAN

by

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A THESIS

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ABSTRACT

The purpose of the study was to examine the efficacy of the methods used to assign students to one of the three programmes of Edmonton's Continuous Progress Plan. Assignment of the pupil is directed by the teacher at the end of the student's first year of schooling. As conducted in the schools from 1957 to 1962, these programmes consisted of: (1) a five-year one for superior students, (2) a six-year one for seventy to eighty per cent of the pupils who, although considered average, were divided into two groups - high and low average, and (3) a seven-year programme for slower-learning students.

To evaluate the efficiency of placement techniques, the study assumed that students who were separated from others must perform academically at a different level. To determine the academic performance, use was made of the Cooperative Sequential Tests of Educational Progress in Mathematics, Reading, Science, and Writing. The testing population was composed of all students who had been registered in the thirty-nine non-graded Edmonton classrooms from the beginning of their schooling. Of the 416 students participating, 47, 19, and 11 were in the five-year programme at the end of the fourth, fifth, or sixth year of schooling; in the six-year programme were 202, 72, and 27 pupils; and, in the seven-year programme, there were 20 at the fourth year, and 10 at the

fifth year.

The results of the above testing completed in June, 1962, were used to compare the performances of groups of students who were in the same year of schooling, but who were in different programmes, by comparing means and calculating tests of homogeneity of variance. Also, conditions of overlap of scores were studied for adjacent groups.

In the statistical analyses concerning comparisons of groups, those predicted as being academically better did not perform significantly better at all levels than the poorer groups. In each subject at the fourth year, groups did perform significantly differently, but at the fifth year, performances on Mathematics and Reading tests between slow-learning and low average groups were not significantly different. At the sixth year, the two average groups did not perform significantly differently in any subject. However, tests of homogeneity between adjacent groups at all levels indicated serious differences in the variances of most groups which had significant differences between means; thus, the reliability of the significant differences were questioned, and had to be further justified by using non-parametric U tests.

Calculations concerning the number and percentage of students performing above or below the means of adjacent groups indicated that the numbers of students who performed similarly,

but who were registered in adjacent groups, were so large that the predictive value of screening techniques was considered too inaccurate to select students for different programmes.

Two recommendations were suggested for modifications in present procedure. First, consideration must be given to exploring other practices for grouping students for instructional purposes. Second, consideration must be given to preparing teachers for differentiated instruction and to supplying the materials necessary to make execution possible.

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- APPENDIX B One Copy of Level Four of Cooperative Sequential Tests of Educational Progress in Mathematics, Reading, Science, and Writing
- APPENDIX C One Copy of Each of the Following Predictive Tests: Gates Primary Paragraph Reading Test, Gates Primary Word Recognition Test, Calgary Primary Arithmetic Test, and Detroit Advanced First-Grade Intelligence Test.
- APPENDIX D Sample Answer Sheet for STEP Tests.

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CHAPTER I

STATEMENT OF THE PROBLEM

The graded method of grouping elementary students for instructional purposes has been subject to modifications almost from its introduction into Canadian education. One of the more recent proposals for replacement of graded organization has been homogeneous grouping by achievement, called non-grading. In 1957, Goodlad (pp. 217-226) reported that forty-four communities in United States were already using this type of organization in their elementary schools. In the spring of that year, Edmonton too, began to experiment in non-graded classrooms at Parkallen School. It has been continued at that school, and was expanded to include Delton and Crestood in 1958, and Rutherford, Inglewood, Lauderdale, King Edward, Parkview, Windsor Park, and Capilano in 1959. In a flexible form, this new method of classroom organization, the Continuous Progress Plan, has been adopted officially by the Edmonton Public School Board to replace a graded system at the elementary school level.

The Continuous Progress Plan allows three different programmes to be offered: a five-year one for the most academically superior students, or about ten to fifteen per cent of the students; a six-year programme considered the normal stream which includes from seventy to eighty per cent

of the pupils; and lastly, a seven-year programme for ten to fifteen per cent of the pupils who would generally be retarded at least one year in graded schools.

A number of tentative solutions to very serious problems had to be formulated so that the new plan could be established. These details were presented to participating schools in a manual,¹ The Edmonton Continuous Progress Plan (First Draft, 1960)². Special methods and materials (Appendix A, pp. 21-54) were evolved to meet demands of superior and slower-learning pupils. Attention has been given to the effectiveness of various arrangements of groups in the classrooms. The report card was modified to allow reporting to be related to the programme in which each student is enrolled. However, the practices for selection of students for the three programmes was, and is today, a critically important area needing examination.

The purpose of the Continuous Progress Plan is to provide special programmes for certain types of students; to have them participate in unsuitable programmes would defeat the attempt to individualize instruction. The existing screening techniques have not been seriously investigated.

¹The manual supplied to teachers for guidance, The Edmonton Continuous Progress Plan, is referred to as the Manual.

²Appendix A.

Students have been chosen for the six and seven-year programmes, but performance levels on screening tests have not been established as city-wide policy. It is the purpose of this study to examine the effectiveness of the methods used to assign students to the three programmes of the Continuous Progress Plan¹.

HYPOTHESES

To evaluate the screening techniques used in the C.P.P. to assign pupils to one of the three programmes, the following hypotheses were tested:

1. There will be no significant differences between mean performances of the following groups in achievement as measured by Cooperative Sequential Tests of Educational Progress² in Mathematics, Reading, Science, and Writing³ (1956):

a. Pupils in the fourth year of the five-year programme, and those in the fourth year of the six-year programme, high average group.

¹In the study, the Continuous Progress Plan of Edmonton Public Schools is abbreviated to C.P.P.

²In the study, Cooperative Sequential Tests of Educational Progress is abbreviated to STEP Tests.

³Appendix B.

b. Pupils in the fourth year of the six-year programme, high average group, and those in the fourth year of the six-year programme, low average group.

c. Pupils in the fourth year of the six-year programme, low average group, and those in the fourth year of the seven-year programme.

d. Pupils in the fifth year of the five-year programme, and those in the fifth year of the six-year programme, high average group.

e. Pupils in the fifth year of the six-year programme, high average group, and those in the fifth year of the six-year programme, low average group.

f. Pupils in the fifth year of the six-year programme, low average group, and those of the fifth year of the seven-year programme.

g. Pupils in the sixth year of the five-year programme, and those in the sixth year of the six-year programme, high average group.

h. Pupils in the sixth year of the six-year programme, high average group, and those in the sixth year of the six-year programme, low average group.

2. There will be no significant differences between the mean performances of girls and that of boys at the end of the fifth and sixth years, as measured by the STEP Tests.

3. There will be no students in one programme of the C.P.P. who perform better than the mean of groups in other programmes at the same level.

4. There will be no students in one programme of the C.P.P. who perform below the mean of groups in other programmes at the same level.

5. There will be some students in each programme of the C.P.P. who have been transferred from the original programme assignment.

DEFINITION OF TERMS

1. Placement Policy. The assignment of students into the second year of the five, six, or seven-year programmes of the C.P.P. is the responsibility of the first-year teachers during March to June of the students' first year of schooling. According to the Manual, teachers are directed to support their personal observations and judgments by testing each student for mental capacity, and arithmetic and reading achievement. (pp. 11-12) Also, teachers' judgments are to be used to evaluate emotional and social adjustment, and health. (pp. 12-13)

2. Superior Pupils. The term "superior" in the study is restricted to those pupils associated with the five-year programme. The symbols "4/5", "5/5", and "6/6" are used to indicate students in the fourth, fifth, or sixth

year of the five-year programme. A group referred to as "6/5" were registered in the first year of junior-high school.

3. High Average Pupils. Students in the six-year programme are usually divided into high and low average groups. Only those who are generally most successful are included in the high average group. The symbols "4/6aa", "5/6aa", and "6/6aa" are used to indicate high average students in the fourth, fifth, or sixth years of the six-year programme.

4. Low Average Pupils. The low average part of the six-year programme is that group which is least successful. The two groups, the low and high average, are selected, not because of different programmes, but rather for classroom organization. The symbols "4/6a", "5/6a", and "6/6a" are used to indicate low average groups in the fourth, fifth, or sixth year of the six-year programme.

5. Slower-learning Pupils. The term "slower-learning group" is restricted to those students who are enrolled in the seven-year programme. As with other groups, the numerator of the fraction symbolizing the group indicates the year in school, and the denominator "7" indicates the type of programme.

THE LIMITS OF THE STUDY

It must be recognized that although the nongraded concept was initiated as early as 1957 in Parkallen School, momentum gathered very slowly. No attempt was made to evaluate the programme through conventional experimental methods. It seems that the C.P.P. was not hurried in its development because of an awareness that too many nongraded systems had been discontinued because of lack of teacher and parental support. (Goodlad, 1959, pp. 188-190) Regardless though, of the reasons for the extended developmental period, one must accept modifications during the study period - 1957 to 1962 - and with these, a diversity of policy among schools in placement and transfer policy.

The lack of rigid control over conditions within the C.P.P. as it developed required a preliminary study of the placement policies of the schools participating in the study.

Another problem within the study involved the difficulty of establishing criteria for evaluating whether a student who is participating in a programme, indeed belongs only in that programme. One evaluation in the study of the accuracy of original placement shall be in terms of transfers of students from one programme to another. Another evaluation shall come from the assumption that students screened as superior for the five-year programme should perform

significantly better than students in either the two other programmes. Also, students in the six-year programme should perform significantly better than those in the seven-year programme. This study will make no attempt to establish standards of performance by comparing students who are matched in ability, but participating in graded and non-graded programmes.

BASIC ASSUMPTIONS

The involvement of thirty-nine classroom teachers and 500 students in a field study necessarily suggests many basic assumptions:

1. that all standardized tests were properly administered;
2. that all students attempted their best on all tests;
3. that all information obtained from teachers was accurate;
4. that all standardized tests measured true performance in academic areas of the test;
5. that transfer of a pupil from one programme to another was the result of faulty prediction, or a change in performance, rather than a change in policy regarding the membership of the groups; and,
6. that the effect of varying quality in teaching has been minimized by including students from all classrooms in the C.P.P.

COLLECTION AND ANALYSIS OF DATA

The sample included all students currently enrolled in Edmonton Public Schools who at the time of the investigation were in the fourth, fifth, or sixth year of the C.P.P., and have been in the plan since beginning school.

It was necessary to collect the following data directly from school files:

1. names of students who qualified for population requirements,
2. date of birth of each student,
3. raw scores of Gates Primary Paragraph Reading and Word Recognition Tests, and the Calgary Primary Arithmetic Test, and intelligence quotients from The Detroit Advanced First-Grade Intelligence Test¹ used for screening, and
4. record of change in programme assignment.

Each pupil for whom screening data were collected was administered the STEP Tests in Mathematics, Reading, Science, and Writing in June, 1962. The hypotheses of the differences between the performances of adjacent groups were tested by calculating the significant differences between the mean performances of groups. To check the effect of variance, tests of homogeneity of variance were completed, and the percentage of students performing above and below the mean performances of adjacent groups established.

¹See Appendix C for copies of tests used for placement.

CHAPTER II

REVIEW OF RELATED STUDIES

Today, the "graded" method of school organization seems to have been a part of education as early as "class-rooms", or indeed even "teachers" themselves. However, we do know that the graded elementary school was unknown in Canada as late as 1830. Phillips (1957, p. 141) points out that it was not until forty years later that the effects of the Quincy Grammar School reached New Brunswick to influence the Act of 1871, which recognized three divisions of school: elementary, advanced, and high. By 1876, one quarter of all schools in New Brunswick had pupils classified into graded departments. It is the purpose of this chapter to summarize the research which attempted to evaluate the grade concept of school organization which has dominated school systems in Canada for three quarters of a century.

No sooner had the graded system been widely adopted in United States, than educators began criticism of it. One of the earliest attempts of a school system to change from a graded structure was the St. Louis Plan of frequent promotion and reclassification. Goodlad (1959, p. 49) suggests that the modifications started by Harris in St. Louis in 1868 are continuing to the present in such widely publicized systems

as the Pueblo Plan, San Fransisco Plan, Batavia Plan, North Denver Plan, Cambridge Plan, Santa Barbara and Baltimore Plans, Portland Plan, Dalton Plan, Winnetka Plan, Contract Plan, and Ability Grouping Plans.

As in the United States, Canada too, experienced attempts to modify the graded systems. By the second and third decades of the twentieth century, school systems in New Brunswick, British Columbia, and Saskatchewan had experimented with local versions of the Dalton and Winnetka Plans. By 1936 in Alberta, the Programme of Studies for the Elementary School indicated that the rigid grade system was being modified:

In strict usage, the term 'grade' signifies a 'step' of advance along a scale of attainment in a given 'subject', or type of school work, the successive steps corresponding to the successive years of a child's school life. Thus Grade I represents the normal attainment of a beginner during his first school year, and Grade VI represents a pupil's normal attainment at the end of his sixth school year.

.

In this programme the fact of individual differences is recognized. The term grade is used to denote merely a level of attainment in any given subject, activity or element of the school programme. In the skill subjects at least, the pupil's progress is to be measured in terms of mastery and attainment, and not by the length of time spent in school.

. . . In such cases (city schools), the principal should do all in his power to minimize the rigidity of the grade organization, by affording opportunities for re-grouping in the social activities and experiences. The great aim of the new programme is to encourage flexibility in organization, and the adapting of instruction to individual needs. (Alberta Programme of Studies, 1936, p. 3)

By 1957, problems within the graded system in Edmonton Elementary Public Schools had led local administrators to a C.P.P. adapted from ones used in Windsor and Hamilton, Ontario, and in Calgary, Alberta. Ritchie (1960, pp. 34-47) prepared in his thesis, Nongraded Elementary School Programs, an excellent description of relationships between these plans and the C.P.P. of Edmonton.

Modifications in the local graded system have probably been stimulated by developments in four areas: (1) the effect of changing educational objectives; (2) the concept of individual differences; (3) the non-promotion of slow-learners; and, (4) the research about grouping. The research studies presented in this chapter are organized under the preceding topics.

CHANGING EDUCATIONAL OBJECTIVES

Early procedure to delineate the proper objectives of the school was to analyze the things that adults needed to do to live safely and efficiently as individuals and as members of groups. Many of the earlier formulations were stimulated by the work of Herbert Spencer and Thomas H. Huxley. The latter in an address on Liberal Education: and Where To Find It in 1868, was quoted by Ulich (1954, p. 209) as stating that:

Well, what I mean by Education is learning the rules of this mighty game (of man with life). In other words,

education is the instruction of the intellect in the laws of Nature, under which name I include . . . men and their ways; and the fashioning of the affections and of the will into an earnest and loving desire to move in harmony with these laws.

The preceding objectives associated with procuring the necessities of life were neglected during the latter part of the nineteenth century when faculty psychology and mental discipline held sway.

By 1925 the effect of Dewey's writings was being felt, especially through the teachings of Kilpatrick at Columbia. Educational objectives were selected on the basis of the needs of students more than on the analysis of life activities. It was believed that when children work at things that appear to function, their interest is increased and learning is accelerated.

In attempting to consolidate many principles from the past, modern education has produced a very broad set of aims, if one can agree with Phillips (1961) that effective aims in public education are:

1. To have pupils learn the means of communication.
2. To develop responsibility.
3. To encourage some knowledge of the past and an alert understanding of current developments.
4. To encourage active participation in aesthetic and social activities.
5. To ensure scholarly knowledge of academic subjects, or, to develop will and ability to do conscientious work in non-academic occupations. (Phillips, 1961, p. 6)

Thus, elementary education has become primarily a socializing force. Consequently, new procedures must now do more

than produce merely higher reading scores. They must recognize that classroom techniques are important, not only because of the academic successes they bring, but also because of their social and personal effects.

However, the aims of education are by no means agreed upon by the public and professional educators. Worth (1962) suggested that a shift in emphasis may be revealed by a statement by Andrews:

. . . the tasks of most importance both in practice in the schools and as desired by all groups studied are what might be described as basic intellectual tasks. These are clearly predominant over the personal, social, societal, cultural, and vocational tasks. (Andrews, 1959, p. 55)

If, regardless of the exact definition of current goals of elementary education, teachers have to look at their students as individuals, their similarities and differences must be recognized. The next section attempts to present information about these characteristics.

INDIVIDUAL DIFFERENCES

Although Goodlad and Anderson (1959, pp. 1-28) felt it necessary in 1959 to devote twenty-eight pages to ways in which children's rates of growth and development vary, teachers today probably recognize most of the following differences listed by Wrightstone (1957) below:

1. Children of the same age do not grow and learn at the same rate. As a group, boys mature less rapidly than girls. But individual girls and boys grow and learn at different rates.

2. Children's learnings are continuous, even though their rates are varied.

3. Children's learnings are not always even; they may be good in one area and poor in another.

4. Children in a class at any grade level vary widely in ability and achievement

5. The term 'promotion' is a misnomer. Children mature naturally from one stage to another. They are not 'promoted' physically, mentally, or educationally. (p. 4)

In a recent review of local studies about student variability, Worth (1962) reported that studies by Dunlop (1955) and by Jenkinson (1962) supported differences in student ability, and also differences in children's preferred ways of perceiving and learning.

Because of the range of differences among students of the same chronological age, and the differences in understanding and achievement from subject to subject for a single student, there can be no easy imprisonment into the lock step of grade levels. Classroom organization must be adapted to meet the needs of pupils with high or low ability, and with special abilities or disabilities. In addition to organizing for these various qualities, the teacher must create a climate which allows students with various strengths and weaknesses to grow as members who truly belong to the group.

Although many of the differences among children have been recognized for years, the use of non-promotion continues as one of the many attempts used to reduce the range and complexity of the problems in class organization. Attempts to measure its effectiveness are presented in the following section.

NON-PROMOTION OF SLOW LEARNERS

Although much research has been devoted to establishing how children differ from one another, not even the early "grammar" school argues that all pupils learned at the same rate for those learners who could not keep up with the others had to be failed.

In attempting to determine the extent that non-promotion continued to be used to solve individual differences, Otto and Estes (1957, p. 7) reported that a study of the 1950 U.S. census revealed that in the ages 8 to 18 inclusive, 74.1% were in the expected grades, 11.5% were retarded one grade, 7.6% were retarded two or more grades, and 4.7% were accelerated. However, in the last decade in United States there has been appreciably less retardation. Wrightstone (1957, p. 6) reported that the average child in a given grade was one full year younger than was the average child of the early twenties. Therefore, research into the problem of non-promotion has changed the attitudes of many educators.

That the effects of promotion practices have been the subject of extensive research is well illustrated in an article in The Alberta Journal of Educational Research by Worth (1959, p. 77), when he quoted over forty direct studies in this area. In general, research on non-promotion over the past fifty years has strongly suggested that it is generally

ineffective, and as Worth summarizes: "Continued reliance upon non-promotion in itself to improve school achievement is unwarranted". (1959, p. 77)

However, in graded schools, non-promotion continues to be used to solve problems of individual differences. Worth (1961) extended previous research to an investigation into the conditions when repetition of a grade is most profitable. The study used sixty-six students who were repeating grade three in forty-five Alberta classrooms. The influence on gain in achievement of twenty-three variables was considered.

Among eleven social-personal factors, only a combination of a lower intelligence quotient and a high chronological age affected achievement. Results concerning health, transiency, home conditions, absence, or desirability as a work or play companion were not significant. Twelve instructional factors were also analyzed, but only the length of teacher training was considered influential.

Along with non-promotion and acceleration as methods to solve instructional difficulties caused by individual differences of students, grouping students who are homogeneous with respect to general intelligence or general school achievement have been widely tried techniques. The following section presents evaluation of a variety of methods of grouping children within schools or classrooms.

RESEARCH ABOUT GROUPING

One of the first schemes to explore ability grouping as a means of decreasing individual differences in intelligence with a group of children of similar chronological ages was introduced in Detroit, Michigan, in 1920. The method used, the XYZ Plan, organized students into three groups. The superior twenty per cent were organized into X groups, and the middle sixty per cent into Y groups. The least able were organized into Z groups. Differentiated curricula were provided for each group to meet the range of interest. Since 1920, many variations of this system of ability grouping have been set up by various school systems. Ritchie (1960, pp. 28-42) reported in detail about fourteen of them.

Associated with evaluation of homogeneous grouping has been the question of whether or not this type of grouping is socially desirable. Cummins (1958, p. 21) in his opposition to homogeneous grouping, was very positive about the need for wide-range associations.

Although the question of whether it is democratic or even fair to release a student from a homogeneous classroom upon a heterogeneous world has not been resolved, positive research has been completed about the reduction in student variability through ability grouping. Cummins (1958, pp. 22-23) interprets learning as a function of a person's

level of intelligence, a person's level of motivation, his past experience and preparation, and facilitation offered to him. Therefore, he concludes, grouping for learning when a broad range of human characteristics is demanded, has little chance of success. Goodlad suggested the following generalizations about homogeneous grouping:

(a) Ability grouping only imperceptibly reduces student variability when a broad range of academic, intellectual, physical, and social traits are considered.

(b) When students of a given grade level are divided into A and B classes, or A, B, and C classes according to general ability, variability in school achievement is reduced about seven and seventeen per cent respectively.

(c) When this kind of grouping is accompanied by vertical regrouping so that bright and slow students advance on separate promotional tracks, attainment variability is reduced about ten per cent more. One kind of frequently advocated ability grouping - segregating the bright and the slow from the average group on the basis of a general ability criterion such as IQ - falls far short of achieving the virtues claimed for it. (Goodlad, 1958, p. 224)

Despite his positiveness while summarizing research in ability grouping, Goodlad immediately cautioned that:

Studies reporting research of this kind (when the conditions controlled for experimentation are inimical to the underlying philosophy of the two plans compared, or when ability groups supported by appropriate curricular and instructional adaptations are shown to be superior to non-differentiated groups for which similar adaptations have not been made) are meaningless for comparative purposes, although they may be useful in revealing the educational procedures that should accompany organizational change. (Goodlad, 1958, p. 224)

Because of Goodlad's criticism, it is important to examine in detail studies that have been reported to support ability grouping, and to evaluate the validity of their

conclusions. The first studies chosen were those by Jones (1948), Barbe and Waterhouse (1956), Holmes (1956), Evans (1962), and Clarke (1958). The first three are evaluated because they have been quoted by such prominent educationalists as Goodlad (1960, p. 222) and Shane (1960, p. 426) as supporting non-graded organization. Evan's work is important background to the current study, not only because it was completed in Edmonton at the time the experimental non-graded scheme was being developed, but because groups on different programmes in a C.P.P. classroom are organized similarly to the "split grade classroom" of his study. The last study of the group, Clarke's, is related directly to the current investigation because it attempted to evaluate intelligence and reading achievement as the bases for grouping designed to reduce variability of achievement within a classroom.

As well as the above investigations, important evaluations have been attempted of non-graded schemes similar to Edmonton's C.P.P. One of the more recent studies, by Carbone in 1961 at Chicago, is reported in detail in this chapter. Another study of a non-graded system was conducted by Gillespie in Calgary, Alberta, in 1959. Although the latter one was not so extensive as Carbone's study, it too is reported in detail because of proximity to Edmonton, and similarity of purpose.

Experiment in Adaptation to Individual Differences.

The purpose of Jones' study was to find the effect of teaching reading to children in grade four at their individual levels of accomplishment. An experimental group was organized to be taught reading at the levels indicated by a standardized reading test. Another group, to act as a control, was taught reading at the grade four level. The study of difference was based on the amount of growth from one point of measurement to another.

The experimental group, the students offered curricula designed to meet individual differences, was gathered out of 448 grade fours in September, 1945. They were tested with the Kuhlmann-Anderson Mental Test, Stanford Achievement, Spelling, Form E, Stanford Achievement Arithmetic Form E, and Gates Basic Reading Test Form I. In May, 1946, the group was administered a different form of the above achievement tests. From the 288 pupils who were left after transfers were excluded, 186 in five buildings and five classrooms were chosen for the study. A control group of 186 were matched with the experimental group, using intelligence quotient and general socio-economic areas. The pupils were actually matched in groups of five to lessen the effect of teachers and socio-economic standings.

The results of the testing as measured in grade scores is reported in Table I. The comparative gains were evaluated by t-tests, which found significance at either the five

TABLE I
COMPARATIVE GROWTH OF CONTROL AND EXPERIMENTAL GROUPS¹

I.Q.	N	READING		ARITHMETIC		SPELLING		AVERAGE	
		CL ²	EX ³	CL	EX	CL	EX	CL	EX
110 plus	24	1.27 ⁴	1.38	1.60	1.45	1.30	1.65	1.36	1.60
90 - 109	82	.66	.91	1.02	1.17	.74	1.05	.81	1.08
Below 90	19	.27	.63	.40	.72	.28	.63	.36	.73
TOTAL AV.	125	.73	.96	1.03	1.19	.78	1.21	.87	1.11

¹after Jones, page 272.

²Control Group.

³Experimental Group.

⁴Mean grade score gain for group.

or one per cent level between each group. Jones summarized her study by concluding that:

Children taught on their individual levels regardless of grade placement make a greater amount of growth than comparable pupils taught as a group the (prescribed) curriculum. . . . Individualized instruction is more profitable for dull and normal pupils than the bright. (Jones, 1948, p. 272)

An Experimental Program in Reading by Barbe (1956).

The purpose of Barbe's study was to determine if superior results would be produced in grades four to six by grouping students by reading level for one period a day.

The procedure was simply to determine if growth in reading during the experimental period was greater than average gains. One hundred eighty-two students in grades four, five, and six were divided into six groups according to their reading level measured in grades. Seventeen students were assigned to read at grades one and two level, and the remainder of the 186 were divided into groups of approximately thirty for reading at levels from grades three to six.

The above were tested in November, 1953, and again in May, 1954, by Gates Basic Reading Test, Forms I and II. The mean grade score performance was calculated before and after, and the increase determined by subtraction. The grade score increases for the three groups were 0.9, 1.2, and 0.9 grades for the period of schooling November to May.

The conclusions, based upon the above increases, were that "needs of children can more clearly be met when they are grouped according to reading ability". (Barbe, p. 104)

An Evaluation of Two Methods of Grouping by Holmes (1956). Holmes conducted a study to determine the relative effectiveness of "permanent grouping" (students grouped within a classroom for the term), and "flexible grouping" (class is taught new material as one group; then class is subdivided for practice of new concepts) in arithmetic in grades three, four, and six.

The study was actually divided into two parts. Initially four classes of grades three and four were matched according to intelligence quotients, socio-economic groupings, and teachers' abilities. The experimental group, organized with flexible grouping, was composed of one grade three and one grade four class. The control group, with permanent groupings for the year, was the other grade three and four classes.

The two groups were tested in October, 1954, and March 4, 1955. The instruments used for establishing matching groups and for measuring gain in achievement of each group were: (1) Stanford Primary Mental Ability Test (two forms), (2) Intermediate Battery of the Metropolitan Achievement

Tests, (3) Questionnaire: What Do You Think?¹, and (4) sociograms.

The second phase of the study consisted of conducting a similar evaluation of two grade six classes during the period of October to May with special attention to children's attitudes toward arithmetic, and to their social adjustment.

The results of the study were defined as:

1. each group in each classroom made real gains, but no significant difference, using t-tests, was established between groups,
2. the changes in group structures in classrooms as established by sociograms did not indicate any change in structure because of grouping, and,
3. the method of grouping made little difference.

Grouping Combinations in Split Grades by Evans (1960).

Regardless of the attempts to modify graded schemes, the number of children in each grade very seldom allow all classrooms in a school to have only children from one grade in each classroom. Quite often children from two grades are placed together to make a "split grade" room. Evans reported (p. 12) that, in the period 1955 to 1960, one out of every

¹A sample question from the instrument, What Do You Think? is: If your class has been practising for a play, and there isn't time for all the lessons, which one would you like to have left out?

six classes in the Edmonton Public School system was a split grade class.

The design of the Continuous Progress Plan has an important element in common with split grade classes: each classroom has two groups (or grades) working at different levels. Thus for the purposes of the current study, the evaluation of Evan's work shall be concerned with the validity of conclusions regarding the efficiency with which certain types or levels or ages of students function together.

To determine if any particular grouping for split grades was better than another, a number of experimental classes were organized in the fall according to a pre-arranged plan. Twenty classes with high achievers in grade five, and average achievers in grade six were organized, but only two, three, and four classes in each of the other combinations of low grade five and six, and low achieving grade fives with high achieving grade sixes. Control group for each experimental group were drawn from single grade classes.

The performance of each group in each experimental plan was measured by standardized tests in reading and arithmetic in the fall and again in the spring. The t-test for the means of independent samples was used to discover the significance of any differences found between the means of all groups compared.

Certain of the experimental plans studied contained

too few classes to randomize the teacher and class variables. However, Evans did conclude that most split grade classes will do just as well in reading and arithmetic as single grade classes. He found that the most satisfactory split grade grouping arrangement was the one in which low achievers in the lower grade were combined with high achievers in the higher grade.

The Use of Intelligence and Reading Achievement to Group Students for Instruction by Clarke (1958). This study attempted to investigate two problems: (1) What variability of achievement was present in existing ungrouped classrooms? and, (2) To what extent would variability be reduced by using either intelligence or reading achievement as a basis for grouping?

The procedure was to give 621 grade three pupils in Edmonton Public Schools a battery of tests in May, 1956. The resulting data were analyzed, and from Table II the following conclusions were made about the variability of ability and achievement in ungrouped classes:

1. The range of intelligence is 50 I.Q. points, and approximately two-thirds of the students in a class will be in a range of 24 I.Q. points centering on the average.
2. Ranges of Word Recognition and Paragraph Reading are 3.5 and 4.1 grades respectively. . . .
3. Range of California Reading scores is 2.2 grades. . .
4. Variability in arithmetic is lower than in reading. . . (Clarke, 1958, p. 166)

The following conclusions from Table III were made about the

TABLE II

VARIABILITY WITHIN AN AVERAGE GRADE III CLASSROOM¹

TEST	AVERAGE RANGE			
	Low	Mid 80%	High	S.D.
California Short Form Primary Maturity Test	77 ²	89	116	127
Gates Advanced Primary Word Recognition	2.7 ³	3.2	5.4	6.2
Gates Advanced Primary Paragraph Reading	2.8	3.3	6.0	6.9
California Achievement Total Test Battery	3.7	4.2	5.1	5.4
				0.41

¹Clarke, 1958, pp. 164-165. ²Intelligence quotient score. ³Grade score.

TABLE III

EFFECT OF GROUPING ON VARIABILITY IN ACHIEVEMENT¹

METHOD OF GROUPING	AVERAGE RANGE IN WORD RECOGNITION GRADE SCORES				AVERAGE RANGE IN CALIFORNIA ARITHMETIC GRADE SCORES					
	Low	Mid 80%	High	S.D.	Low	Mid 80%	High	S.D.		
Ungrouped	2.7	3.2	5.4	6.2	0.93	3.8	4.3	5.2	5.5	0.42
Grouped by I.Q.	2.7	3.2	5.3	6.1	0.88	3.9	4.4	5.2	5.5	0.41
Grouped by Reading	2.9	3.4	4.5	5.4	0.58	4.0	4.4	5.2	5.4	0.33

¹Clarke, 1958, pp. 167-169

effect of grouping on variability in ability and achievement:

1. Grouping by California Reading test scores reduces variability in California Mental Maturity I.Q. by 10 per cent.

2. Grouping by I.Q. reduces variability in California Reading test scores by 9 per cent.

3. Grouping by I.Q. reduces variability in arithmetic and language by 2 per cent, while grouping by reading reduces the variability by 20 per cent.

(Clarke, 1958, p. 170)

In summarizing the study, Clarke stated:

This study finds that the extent of reduction in variability which can be achieved by grouping is not great. The most encouraging finding is that grouping by reading, . . . also reduced variability in both arithmetic and language achievement scores by twenty per cent. (Clarke, 1958, p. 170)

A Comparison of Graded and Non-graded Elementary Schools by Carbone (1961). Carbone's recent study attempted to determine the effect on academic achievement and mental health of attending non-graded schools. Three hypotheses were investigated:

There were no significant differences in the achievement of comparable groups of pupils who have attended graded and non-graded schools at the primary level.

There were no significant differences in the mental health of comparable groups of pupils who have attended graded and non-graded schools at the primary level.

There were no identifiable differences in the instructional practices of teachers in graded and non-graded schools. (p. 83)

From two school systems identified as having non-graded programmes, one school in each of the upper, middle and lower levels of socio-economic rating, were chosen. In each of these schools three classes - a fourth, fifth, and sixth grade one - were randomly selected. Only pupils who had been in

attendance in the systems' primary schools were retained. Control pupils were selected similarly from two graded school systems. Finally, all possible pairs of graded and non-graded pupils matched for age and sex were selected. This method produced 122 pairs of graded and non-graded pupils for the study. These pairs were compared for achievement and mental health.

The instruments used to compare achievement and mental health of pupils were: (1) Iowa Tests of Basic Skills, (2) The Mental Health Analysis of the California Test Bureau, (3) Semantic Differential, and (4) a questionnaire of instructional practices of teachers.

The results of comparing the performance of the two groups on the Iowa Tests of Basic Skills by using analysis of covariance, holding intelligence constant, are presented in Table IV. The graded pupils scored significantly higher than non-graded pupils in all areas of achievement.

Comparisons of the social and emotional adjustment of the two groups is given in Table V. The analysis of covariance was again used to compensate for differences in intelligence. In four of the five factors no significant difference in the adjustment of the two groups was found. However, in social participation, graded pupils scored significantly higher. In contrast to the data presented on

TABLE IV

ACHIEVEMENT OF 122 GRADED AND 122 NON-GRADED PUPILS
AS INDICATED BY MEAN DEVIATIONS FROM EXPECTED GRADE
EQUIVALENTS ON THE IOWA TESTS OF BASIC SKILLS¹

<u>SUBTEST</u>	<u>ADJUSTED MEAN DEVIATIONS</u>		<u>F</u>	<u>P</u>
	<u>Graded</u>	<u>Non-graded</u>		
Vocabulary	1.224	.695	13.7	.01
Reading Comprehension	1.133	.650	10.3	.01
Language	1.133	.552	35.5	.01
Work-Study Skills	.978	.501	24.4	.01
Arithmetic	.867	.348	41.4	.01

¹after Carbone, p. 85.

TABLE V

MENTAL HEALTH OF 122 GRADED AND 122 NON-GRADED PUPILS
AS INDICATED BY MEAN SCORES ON THE MENTAL HEALTH
ANALYSIS OF THE CALIFORNIA TEST BUREAU¹

<u>MENTAL HEALTH AREAS</u>	<u>ADJUSTED MEANS</u>		<u>F</u>	<u>P</u>
	<u>Graded</u>	<u>Non-graded</u>		
Freedom from Emotional Instability	10.4	10.8	.02	n.s.
Freedom from Feelings of Inadequacy	11.1	11.4	.51	n.s.
Freedom from Nervous Manifestations	14.1	13.7	.81	n.s.
Social Participation	16.0	15.0	8.01	.01
Personal Relationships	16.4	15.7	3.29	n.s.

¹after Carbone, p. 85.

mental health, the results of the Semantic Differential¹ suggested that non-graded pupils have a more desirable attitude toward their teachers (bright, smooth, sweet, relaxed, big, quiet, as opposed to little, loud, boring, hard, dull, sour, rough).

Only twenty-seven per cent of all teachers replied to the questionnaire. On the basis of this return he concluded that "teachers in non-graded schools appeared to operate much the same as teachers in graded schools". (p. 86)

From the evidence collected in his study about achievement and mental health, Carbone concluded that:

First, it is not realistic to expect improved academic achievement and personal adjustment in pupils merely on the basis of a change in organizational structure. . . . Second, the attainment of high pupil achievement and good mental health is not a unique result of non-grading. . . .

It seems clear that if any new form of school organization is to produce the benefits that its advocates envision, it must be accompanied by appropriate adaptations in the instructional practices of teachers. Changes in organizational structure alone are not enough. (p. 88)

Evaluation of Streaming in Calgary Public Schools by Gillespie. (1959) In 1956, administrators in the Calgary Public Schools organized a serious modification in the primary division of the elementary schools to accommodate both the very fast and the very slow learners. Gillespie's study was

¹An experimental instrument which contained a list of twenty-five polar word pairs used in describing a person.

an evaluation of the success of the new Four Year Programme in Division I as compared to the success of the regular graded organization in using non-promotion as a solution to the special problems of the slow learners. These latter were defined as pupils of intelligence quotients of eighty or less, and of low achievement. The adjustment of curricula consisted only in reducing the amount of material each year in grades one, two, and three to three quarters of the usual amount for one grade. It therefore takes the slow group four years to proceed through the first three grades.

The study was limited to measuring subject-matter achievement by means of tests in arithmetic, reading, and spelling. This evaluation of the achievement of one hundred "four-year" pupils at the end of grade three was by means of matching them according to sex and mental age with a group of students who had repeated at least once. The achievement of each group in the subjects indicated above was calculated. The t-test for matched groups was used to discover significant differences.

A further evaluation of the "four-year" group was by comparing their achievement with that of "three-year" pupils. The latter group proved to perform significantly better than the "four-year" group in all subjects.

The investigation showed no significant difference between the "four-year" group and the group of repeaters in

any of the subjects tested. Gillespie summarized his results as follows:

It is therefore evident that the extra year of instruction was not sufficient to bring the slow learners up to the "three-year" standard. It may be that the ratio of four years to three years in the primary grades is not realistic, and one of five to three might be necessary if further study indicates that the four years is insufficient to cover the course. (p. 50)

OBSERVATIONS REGARDING RESEARCH OF THE EFFECTS OF ABILITY GROUPING

Certainly the research projects presented in the previous sections have not clearly evaluated grouping as a solution to the problem of individual differences in modern elementary education. This section attempts to evaluate the studies and to indicate the place of the current one.

Jones' study, based upon the performance of pupils in only five classrooms, would indeed be invalid because of its dependence upon the skills of the teachers involved. Not only Jones' inquiry, but that of Holmes and Harvey support the general conclusion that an able teacher, given freedom to work creatively is more important by far than any mechanical scheme, however ingenious.

The second study, by Barbe, was presented in detail as an indication of the type of work being quoted concerning ability grouping. Goodlad refers to Barbe's study as one of:

Several more recent studies suggest that curricular differentiation for the range of student variability represented in a given group is a more significant contributor to academic progress than is the basis for establishing classroom groups. (Goodlad, 1957, p. 224)

Barbe's study was very weak in many respects. Only 182 students participated in a growth study for six months. Because of an increase of two months greater than the national norm increase for the same period, he concluded that the "needs of children can more clearly be met when they are grouped according to reading ability". (Barbe, p. 104)

The extensive study by Carbone was a sincere effort to provide convincing evidence of the comparative values of graded and non-graded programmes. He too, though, realized that he was not really comparing two different methods of providing for individual differences of the pupils involved. He wrote about "the" graded plan (p. 83), whereas, there are many modifications to graded systems, and probably, although neither graded nor non-graded organization in his article are described, the methods of instructing pupils in both schemes were very similar. He pointed out that non-grading has not realized its potential:

Certainly if schools are to be organized to promote the continuous progress of each pupil, instruction must become increasingly individualized. Teachers and administrators must learn to view each child in terms of his individual potential and rate of growth. (Carbone, p. 87)

A recent article by Dockrell (1962) in Canadian Education and Research Digest reviewed the problem of providing

special education for gifted children. In his summary he agreed with Carbone that,

The evidence of the (effects of streaming in) experimental studies is quite clear. Merely separating youngsters into different rooms on the basis of intelligence or achievement is valueless It seems clear that carefully prepared programs of enrichment are necessary and that their preparation is difficult. . . . The rare student will be in the top stream in all subjects. Most students can expect to be in different streams for different subjects. (p. 43)

SUMMARY

From examining research related to grouping students for instructional purposes, one may conclude:

1. That the temperate and cautious use of retardation in graded schemes is not condemned overwhelmingly by research evidence. However, non-promotion by itself will not improve school achievement, and indeed, even the ranges and levels of achievement at each grade level are about the same whether promotion is by "standards" or by chronological age.

Students chosen for retardation must be considered individually. Older students of lower intelligence quotient appear to profit most. The receiving teacher should be well-trained and must be prepared to break lock-step treatment to provide individualized teaching.

2. That graded organizations, as modified today, are enabling students to achieve academically as well as they would achieve under non-graded schemes.

3. That children vary so markedly among themselves that attempts at homogeneous grouping have failed primarily because students who are similar with respect to achievement in one subject or with respect to general intelligence, are not similar with respect to achievement in other specific areas of the curriculum.
4. That research completed in Alberta by Clarke (1958), Gillespie (1959), and Evans (1962) do not justify changes in graded organizations to the non-graded concept. If the C.P.P. in Edmonton is successful, some of the shortcomings of schemes studied by Carbone must have been overcome. It is essential that now in 1962, when all elementary public schools will be involved in the new organization, that indications of its successes and failures be discovered so that modifications can be instituted. It is the purpose of this study to collect information about the operation of this plan and to make an interim evaluation of some of its features.

CHAPTER III

THE EXPERIMENTAL DESIGN

This chapter will describe placement practices at the end of the first year of the Continuous Progress Plan, the test population, the description and administration of the tests, the testing procedure, and the statistical treatment of the data.

INITIAL PLACEMENT PRACTICES

It is the purpose of this section to indicate in detail the methods used by teachers to determine the four groups of the three programmes of the C.P.P.

The placement of students into the second year of the five, six, or seven-year programmes is the responsibility of the first-year teachers during March to June of the student's first year of schooling. According to the Manual, teachers were directed to support their personal observations and judgments by testing each student for mental capacity, and arithmetic and reading achievement. (Appendix A) Also, teachers' judgments were to be used to evaluate emotional and social adjustment, and health. (Appendix A)

Mental Capacity. Teachers were directed to administer The Detroit Advanced First-Grade Intelligence Test (Baker, 1954) in March of the first year. This test has seven parts. It

tests ability to identify objects, remember directions, supply missing detail, classify objects, observe like objects, follow verbal directions, and understand numerical concepts. It requires no reading ability but tests visual perception and the ability to understand simple words and directions. The items are arranged in order of difficulty and each item is timed. The entire test takes approximately thirty-five minutes. The test was first copyrighted in 1925, and renewed in 1954 without revision of the test.

No direct instructions were given to teachers regarding intelligence quotients desirable for the six or seven-year programme groups, but before a child be considered eligible for the superior group he must achieve the intelligence quotient for his age group as presented in the scale below in Table VI. This table is based on the principle that younger children should have a relatively higher rating in intelligence to be

TABLE VI

CATEGORIES OF CHRONOLOGICAL AGES AND MINIMUM DETROIT ADVANCED
TEST SCORES NECESSARY FOR FIVE-YEAR PROGRAMME PLACEMENT¹

<u>C.A.</u>	<u>I.Q.</u>	<u>C.A.</u>	<u>I.Q.</u>	<u>C.A.</u>	<u>I.Q.</u>	<u>C.A.</u>	<u>I.Q.</u>
6-2	130	6-7	118	6-11	116	7-3	113
6-3	126	6-8	118	7-0	115	7-4	111
6-4	124	6-9	117	7-1	114	7-5	110
6-5	121	6-10	117	7-2	113	7-6	110
6-6	119						

¹Appendix A, p. 11.

eligible for the group of superior achievers. For example, a student of six years six months requires an intelligence quotient of 119 or higher; a student of seven years six months requires one of only 110.

Achievement. In addition to intelligence test scores, teachers considered scores in Reading and Arithmetic.

Reading achievement was measured by two Gates Primary Reading Tests. (Gates, 1958) The norms of these tests were based on a nationwide sample of schools in the United States. These schools provided a sampling of representative types of instruction, socio-economic status, and levels of intelligence. (Gates, 1958, pp. 14-16) The two tests are designed to measure different phases of silent reading ability and range, accuracy, and power of reading ability in a group test.

Type PWR Word Recognition (Gates, 1954) is designed to sample the ability to read words representative of the primary vocabulary. It consists of forty-eight exercises containing four printed words and a picture which represents one of them. The child is instructed to circle the word which tells most about the picture. The exercises are graduated in difficulty and a fifteen minute time limit is placed on the test. The raw score is obtained from the number correct minus one third the number wrong.

The second test, Type PPR Paragraph Reading (Gates, 1954) requires the reading of paragraphs of gradually increasing

complexity, difficulty and length. It consists of twenty-six paragraphs accompanied by illustrations which must be marked to indicate that the pupil understands what he reads. The time limit is twenty minutes. The raw score is the number of directions carried out correctly.

Rather than use the American norms for the two reading tests, letter-gradings were assigned to raw scores according to normal curve results from a sample of Edmonton students in 1957. The letter-grading grid is presented on page 12 of Appendix A.

The second phase of achievement testing was the administering of the Calgary Arithmetic Test. (Appendix C) Letter gradings were assigned to results of the test using the same technique as for the Reading tests. These letter gradings are presented on page 12 of Appendix A.

After the previously described testing had been completed, the teacher was referred to the letter-grading scales described above. If the student's intelligence quotient made him eligible for the five-year programme, he must be considered in terms of his scores in Reading and Arithmetic. The Manual stated,

Young children (C.A. 6-5 or less) should receive an 'H' standing on both tests (Word Recognition and Paragraph Reading) to be considered eligible for the 'Rapid Learner' group. Others should have an 'A' standing or better.

Similarly, young children should have an 'H' standing on a standardized arithmetic test, but older children may be considered for acceleration with an 'A' standing or better. (Appendix A, p. 11)

Emotional and Social Adjustment. Teachers are requested

in the Manual to observe first-year children carefully for indications of maturity which are valuable for successful school performance. To assist teachers to carry out the above observations, the Manual lists the following ten signs of maturity:

1. Sensible attitude towards authority.
2. Ability to reason.
3. Curiosity and inquisitiveness without undue aggressiveness.
4. Contributes to group activity in a socially acceptable manner.
5. Ability to work independently and to concentrate attention.
6. Assumes responsibility for personal behavior.
7. Enjoys satisfying relations with other children.
8. Absence of tension or nervousness.
9. Freedom from emotional outbursts.
10. Willingness to share and take turns. (Appendix A, page 13)

No scale is presented in the Manual to assist teachers to differentiate in the above characteristics among the four streams of students.

Health. No direct instructions regarding the health of students were included in the Manual - teachers were just directed to observe for "any evidence of persistent poor health which might handicap . . . " (Appendix A, page 13)

In this section, the use of intelligence quotients, standardized tests in Reading and Arithmetic, and subjective judgment of teachers in assigning students to C.P.P. programmes, was described.

THE TEST POPULATION

The children tested in this study were all pupils in the Edmonton Public System: (1) who had been continuously enrolled in one of the experimental non-graded schools, and, (2) who were in their fourth, fifth, or sixth year of schooling, and (3) of whom the school had retained original placement information.

Because of the flexibility of card cataloguing, an individual record form, Figure 1, was developed so that an investigator could go to each school to transcribe placement information about each student.

From the ten schools which had students at the fourth, fifth, or sixth years of the C.P.P., it was possible to obtain data about 416 students in thirty-nine classrooms. Table VII presents details about this population according to the school and level of programme. The pupils in each school are listed according to the programme assignment. The latter are at the top of each column in a fractional code: the numerator represents the year in school; the denominator is the programme.

The results of the investigation into the students available for the study indicated that of the 416 about whom placement information was available, 301 were registered in the six-year programme, 30 in the seven-year one, and 77 in the five-year programme.

SURNAME OF STUDENT		GIVEN NAMES		SCHOOL		TCHRS		YR	
DATE OF BIRTH		RECORDER		RECORD OF ASSIGNMENT		TCHRS		YR	
19		CA		15		15		15	
DATE OF BIRTH		CA		15		15		15	

PLACEMENT TESTING 15		2000 ACCELVATION		STEP TESTING																			
<table border="1"> <tr> <td>DET. REC.</td> <td>MA</td> <td>IQ</td> </tr> <tr> <td>RS</td> <td></td> <td></td> </tr> </table>		DET. REC.	MA	IQ	RS			<table border="1"> <tr> <td>VOGAB</td> <td>UNIT SC</td> <td>SPEL</td> </tr> <tr> <td>RS</td> <td>RS</td> <td>RS</td> </tr> </table>		VOGAB	UNIT SC	SPEL	RS	RS	RS	<table border="1"> <tr> <td>MATH</td> <td>READ</td> <td>SCIENCE</td> </tr> <tr> <td>RS</td> <td>RS</td> <td>RS</td> </tr> </table>		MATH	READ	SCIENCE	RS	RS	RS
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CA	MA	IQ																					
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EPSS	ARITH																						
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FIGURE 1
STUDENT INVENTORY FORM

The thirty-nine classrooms posed problems for evaluative testing, but the increased validity from the diversity of situations, and indeed, the cross-section of Edmonton's population contained in the seven schools, made their retention desirable. There have been no restrictions to limit the number of schools participating in the development of the C.P.P.; consequently, the schools participating are located in a variety of districts. For example, one school is located in a multiple-dwelling suburban area developed in the period 1950 to 1955. Another district is a rental area of pre-World War II development in which a majority of the residents are transient¹. Another school draws its population from a single-family dwelling area with architectural restrictions on the style and cost of the homes.

Tables from the Student Inventory Forms were prepared to present data obtained from school files about original placement. To indicate the cross-section of population achieved from including students from all seven schools, Table VIII was prepared. It indicates the range of scores from each school on one placement factor only, the intelligence quotient. The total frequencies by schools indicated that each one, according to its size, contributed students to each programme.

¹From September, 1961 to March, 1962, 155 transfers out of a population of 635 students were recorded in office files.

TABLE VII

BREAKDOWN OF POPULATION BY SCHOOL AND LEVEL OF PROGRAMME

<u>SCHOOL</u>	<u>CLASS- ROOMS</u>	<u>NUMBER OF STUDENTS</u>										<u>TOTAL</u>
		<u>3/6</u>	<u>4/7</u>	<u>4/6</u>	<u>4/5</u>	<u>5/7</u>	<u>5/6</u>	<u>5/5</u>	<u>6/6</u>	<u>6/5</u>		
A	8		5	39	10	6	40	11	27	11	149	
B	10		2	28	2	4	32	8			76	
C	4		4	26	10						40	
D	6	7	3	40	12						62	
E	2		1	8	3						12	
F	4		5	20	3						28	
G	5	1		41	7						49	
<u>TOTAL</u>	<u>39</u>	<u>8</u>	<u>20</u>	<u>202</u>	<u>47</u>	<u>10</u>	<u>72</u>	<u>19</u>	<u>27</u>	<u>11</u>	<u>416</u>	

For example, out of the 49 students in the five-year programme at the fourth year level, the three largest schools contributed twelve, eleven, and ten each respectively. These schools represented as wide a spread in location and in economic level of housing as may be possible among residential districts in Edmonton.

Comparisons Between Groups Using Placement Testing Results. Because teachers were instructed to use a combination of chronological age and intelligence quotient in deciding whether the latter was sufficiently high to allow a student to be placed in the superior group, Table IX was prepared. It indicates how closely teachers used the preceding principle. Of the forty-six students on the five-year programme at the fourth year level, forty fell within the categories demanded in Table VI. Two of the six who violated the proposed categories were quite young: 6-2 years and 6-4 years. However, four were pupils in the average age group of 6-9 years to 6-11 years.

After the population for the study had been established, it was imperative to evaluate the groups in intelligence and academic achievement, not as individuals, but as groups. If the groups differed in mean intelligence quotient scores, a difference in performance would be expected. Table X presents a comparison of the groups by using t-tests of the difference between means. Adjacent groups at the same year of schooling were compared. For example, the group in the fourth year of

TABLE VIII

FREQUENCY TABLE BY SCHOOLS OF PERFORMANCE OF FOURTH YEAR
STUDENTS ON DETROIT FIRST-GRADE INTELLIGENCE TEST TO
INDICATE CROSS-SECTIONING OF TEST POPULATION

SCHL	PROG	INTELLIGENCE QUOTIENT INTERVAL							TOT
		81 90	91 100	101 110	111 120	121 130	131 140	141 150	
A	4/7		1	4	6				11
	4/6a		1	3	8	7	1		20
	4/6aa		2	2	7	2	1		14
	4/5			1	2	6	3		12
B	4/7	1		2	1				4
	4/6a	1			4	3	1		9
	4/6aa				6	15	7		28
	4/5				2	7	1		10
C	4/7					1			1
	4/6a			1	3	2			6
	4/6aa		2	9	8	2	2		23
	4/5				1	1			2
D	4/7			1					1
	4/6a		5	6	5	1			17
	4/6aa				8	12	3		23
	4/5			1	2	2	1		6
E	4/7		1		3				4
	4/6a			3	7	7			17
	4/6aa				4	1	2		7
	4/5					9	2		11
F	4/7		1						1
	4/6a			2	1				3
	4/6aa				2	3	1		6
	4/5						2		2
G	4/7		1	2	2				5
	4/6a			1		5			6
	4/6aa	1		2	4	4	1	1	13
	4/5				1	2			3
TOTAL		3	14	40	87	92	28	1	265

the five-year programme (4/5) was compared with those in the fourth year of the six-year programme, high average group (4/6aa). The mean intelligence quotient of group 4/5 was 124.52; of group 4/6aa, the mean was 123.37. The difference of 1.15 points was not significant at the five per cent level of confidence. Although the intelligence quotients were not significantly different, the achievement in both reading and arithmetic were significantly different at the .01 level of confidence, with the superior group performing better than the high average group.

Between the two average groups, and between the low average and the slow learners (4/7), the differences at the fourth year were all significant at the one per cent level in favour of the group predicted to be better academically.

For groups in the fifth year of their programmes, a difference existed in intelligence between the superior (5/5) and the high average (5/6aa), but in the skill subjects, the differences were less positive than at the fourth year level. The two average groups at the fifth year were again definitely different, but the low average (5/6a) and the slow learners (5/7) groups showed no significant differences in intelligence and paragraph reading scores, but differences at the .05 level of significance were found on arithmetic and word recognition scores.

TABLE IX
USE BY TEACHERS OF MENTAL CAPACITY CATEGORIES
IN ASSIGNING STUDENTS TO SUPERIOR GROUP

C.A.	CATEGORIES I.Q.	NUMBER WITHIN CATEGORIES	NUMBER BELOW REQUIREMENTS	I.Q. OF THOSE BELOW
6-2	& 130 plus		1	114
6-3	& 126 plus	1		
6-4	& 124 plus	3	1	116
6-5	& 121 plus	1		
6-6	& 119 plus	4		
6-7	& 118 plus	6		
6-8	& 118 plus	4		
6-9	& 117 plus	5	1	116
6-10	& 117 plus	5	1	107
6-11	& 116 plus	5	2	107; 113
7-0	& 115 plus	1		
7-1	& 114 plus	3		
7-2	& 113 plus			
7-3	& 112 plus			
7-4	& 111 plus	2		
TOTAL		40	6	

In summarizing the comparisons between groups as presented in Table X, it is important to note that the method used for grouping was generally successful in establishing groups which were significantly different from one another. Groups that were not significantly different from one another in intelligence were 4/5 and 4/6aa, and 5/6a and 5/7. In arithmetic only 5/5 and 5/6aa were not significantly different. On the Word Recognition Test only the two groups 5/5 and 5/6aa were similar, and in Paragraph Reading Test results, only the groups 5/6a and 5/7 performed similarly. In the preceding comparisons, one should note that similarities between groups involved the two atypical programmes more frequently than comparisons between the groups on the six-year programme. No similarities develop into an obvious pattern, but comparisons to be made at the end of four to six years of schooling must observe these previously indicated similarities or differences which are already in existence.

THE TESTING INSTRUMENTS

To measure developed abilities of the students in each of the programmes, the STEP Reading, Mathematics, Science, and Writing Tests were chosen. The first two tests were used to evaluate the skill core of the elementary school programme. However, because of the inherent danger that accelerated programmes tend to become narrower than usual, the tests in

TABLE X

COMPARISONS OF GROUPS USING MEANS OF
PLACEMENT TESTING RESULTS

PLACEMENT TESTS	N.	MEAN	S.D.	N.	MEAN	S.D.	DIF. ¹
	Group 4/5			Group 4/6aa			
Detroit Advanced	46	124.53	8.08	113	123.37	14.50	
Cal. Arithmetic	46	79.21	7.90	109	69.06	13.71	*
Gates, Type PWR	44	38.68	11.10	109	33.07	8.78	*
Gates, Type PPR	46	23.69	2.26	108	18.68	3.21	*
	Group 4/6aa			Group 4/6a			
Detroit Advanced	113	123.37	14.50	84	117.40	10.32	*
Cal. Arithmetic	109	69.06	13.71	81	61.63	13.13	*
Gates, Type PWR	109	33.07	8.78	81	24.84	9.64	*
Gates, Type PPR	108	18.68	3.21	81	16.53	4.31	*
	Group 4/6a			Group 4/7			
Detroit Advanced	84	117.40	10.32	28	108.57	8.07	*
Cal. Arithmetic	81	61.63	13.13	26	42.00	16.80	*
Gates, Type PWR	81	24.84	9.64	25	10.00	8.23	*
Gates, Type PPR	81	16.53	4.31	27	8.63	6.22	*
	Group 5/5			Group 5/6aa			
Detroit Advanced	20	123.65	10.94	40	114.77	8.81	*
Cal. Arithmetic	20	75.80	12.58	32	70.72	11.20	
Gates, Type PWR	20	37.18	13.43	38	35.47	8.62	
Gates, Type PPR	20	22.65	2.87	38	20.68	3.49	**
	Group 5/6aa			Group 5/6a			
Detroit Advanced	40	114.77	8.81	30	108.20	10.95	**
Cal. Arithmetic	32	70.72	11.20	30	49.13	17.48	*
Gates, Type PWR	38	35.47	8.62	30	21.53	4.80	*
Gates, Type PPR	38	20.68	3.49	30	13.30	4.63	*
	Group 5/6a			Group 5/7			
Detroit Advanced	30	108.20	10.95	12	100.75	11.80	
Cal. Arithmetic	30	49.13	17.48	12	32.08	22.08	**
Gates, Type PWR	30	21.53	4.80	12	13.00	8.98	**
Gates, Type PPR	30	13.30	4.63	12	11.00	6.87	

¹ "*" indicates significant difference at one per cent level of confidence; "**" indicates significant difference at five per cent level of confidence.

Science and Writing were administered to evaluate the part of the programme not usually considered a basic skill.

Each subject area test is developed in four levels ranging from Level I for grades thirteen and fourteen, to Level IV for grades four, five, and six. In the testing in the study, Level IV was administered to all groups except 5/5, 5/6aa, 6/5, 6/6aa, and 6/6a. To the latter groups, Level III of each test was used except for Reading. In comparisons of achievement between groups when one level and form of the test was used for both groups, raw scores were used. However, conversion scores were used in comparing performances of groups when each group completed a different level of the tests.

All of the above tests are similarly constructed multiple-choice types, although the total number of questions vary from fifty in the Mathematics Test to seventy in the Reading Test. Each test is divided into two parts, and thirty-five minutes is allowed for completing each part. The raw score is the total number right.

The STEP Reading Test. The test in reading is designed to evaluate the abilities to reproduce ideas contained in stories, to translate ideas and make inferences, to analyze authors' purposes, to analyze presentation, and to criticize. The type of material used in the test includes announcements, articles, letters, stories, poetry, and plays.

The STEP Mathematics Test. This is designed to evaluate knowledge of number and operation which includes grouping by tens, meaning of fractions, kinds of numbers, problem solving, knowledge of mathematical symbolism, knowledge of measurement and geometry, and of function and relation which includes graphs and equations.

The STEP Science Test. This test is designed to measure ability to use scientific knowledge to solve problems. The types of scientific reasoning measured are those abilities to identify and define scientific problems, to suggest or screen hypotheses, to select valid procedures used for collection of appropriate data, to interpret given information and draw conclusions, and to evaluate critically claims and statements made by others. The questions emphasize applications of science in home, economic, cultural, and social situations.

The STEP Writing Test. The test in writing or language is designed to evaluate student writing ability. The sixty multiple-choice questions measure skills required to determine the reasonable ordering of ideas, events, and facts, the skills of effectiveness of language and skills of appropriateness. The passages, all examples of actual student writing, include letters, stories, announcements, personal narrative and minutes of meetings.

The reliability reported for the STEP tests are the

results of internal analyses based on a single administration of the test. The median reliability reported in The Technical Report by the Educational Testing Service are as follows: ".915 for Reading, .865 for Writing, .850 for Science, and .835 for Mathematics". (p.10)

TESTING PROCEDURES

The procedures used were dependent upon the availability of copies of the tests for the period from June 4, 1962 to June 22, 1962. The population was divided into three groups by schools where special sittings in charge of the principal or a classroom teacher were organized. The answer sheets were machine marked and every twentieth paper was re-marked manually by the investigator to check the accuracy of the original score.

TREATMENT OF DATA

All results and data obtained were recorded on specially prepared Student Inventory Cards. Frequency tables for every test, both predictor and evaluator, were prepared. From the frequency tables, comparisons of the means using the conventional t-test of significance at the accepted one and five per cent levels were made. Tests of homogeneity were calculated for those differences between means which were significant. For

those comparisons in which significant differences of variance were found, the Mann-Whitney U Test was calculated.

Analyses of the data from the above calculations were made.

CHAPTER IV

ANALYSIS OF DATA AND INTERPRETATION OF THE RESULTS

The data obtained from testing 402 pupils with STEP Tests during June, 1962, are presented in this chapter. Mathematics and Reading tests results were used to evaluate the basic part of the C.P.P. programmes, and the Language and Science tests results analyzed to evaluate the breadth of the four programmes. It was assumed that arithmetic and reading, traditional school subjects, are representative of the fundamental skills in elementary schools. However, school learnings embrace not merely this knowledge, but also many appreciations, attitudes, and incidental habits and abilities. The latter involve the social life of the learners, and as such are considered, in the language and science programmes, the breadth of the schools' teachings.

The statistical data of the analysis of the results of the evaluative testing are shown in table form and then analyzed.

ANALYSIS OF TEST POPULATION

Number of Participants. Table VII, on page 46, indicated that the total sample, 402, were divided unequally among the three years of schooling. In the fourth year there were 264

students, in the fifth year were 100, but the sixth year had only 38 subjects. The division of students was also unequal among the types of programmes. In the superior groups, 46 were in the fourth year, 19 were at the fifth year, and 11 students were in the sixth year. The seven-year programme for slow-learners had 23 at the fourth year and 12 in the fifth year. No students were available for the study at the sixth year level of the seven-year programme.

The majority of the students used in the study were registered in the six-year programmes. In the high average groups, 112 were registered at the fourth year, 39 were at the fifth year, and 19 students were working at the sixth year level. In the low average groups, 83, 30, and 8 were registered at the fourth, fifth, and sixth year levels respectively.

Summary of Analysis of Test Population. The number of students was critically small in the special programmes at the fifth and sixth year levels. Because of having only 19 students in 5/5, 11 in 6/5, and 8 in 6/6a, conventional t-test results were checked by the use of nonparametric tests. However, in the fourth year in all the programmes, and with the average groups at the fifth year, the number of students in the testing was sufficiently large to compare groups by testing for a single homogeneous normally-distributed population between groups.

COMPARISONS OF GROUPS USING DIFFERENCES BETWEEN MEANS

The first statistical analysis of the results of the STEP testing was to compare the mean performances of adjacent groups; i.e., the achievement of pupils in the fourth year of the five-year programme (4/5) was compared with that of the high average group in the fourth year of the six-year programme. Similarly, the high average group (4/6aa) was compared with the low average group (4/6a), and again the latter with the slow-learners at the fourth year (4/7). These comparisons were continued through the groups in an identical pattern in the fifth and sixth year levels.

Comparisons Between Groups as Measured by STEP Mathematics Testing. Table XI presents the comparisons between groups using the observed differences between the means of scores for each group. In every situation except one, the difference between means was in favour of the learners who had been chosen as better academically by original predictive testing. However, in the comparisons between the two average groups at the sixth year, the low average one performed better than the high average group. The observed difference, 2.07 raw score points between the two means 26.05 and 28.12, was not significant, however, at the five per cent level of confidence.

The differences between means at the end of all three years for students on the five-year programme, and for those in the high average groups of the six-year programme, was quite large: 7.59, 11.80, and 9.85 raw score points. These differences, of which the superior group scored higher, were all significant at the one per cent level of confidence.

Between the two groups on six-year programmes, the results in Mathematics indicated a significant difference at the one per cent level existed for students at the end of both the fourth and fifth year, in favour of the high average groups. At the end of the fourth year, the two means compared were 30.71 and 25.94. The difference, 4.77 points, was significant at the one per cent level. At the fifth year the two average groups in Mathematics had means of 37.87 and 27.30. The difference was 10.57 points, which was significant at .01 level of confidence. However, the observed difference between the same two groups at the end of the sixth year was only 2.07 raw score points, which was not significant at the five per cent level of confidence.

The difference of 9.42 points at the end of the fourth year between the mean performance in Mathematics of the slow-moving group and the low average group was very large. The means of these two groups, 16.52 and 25.94, were considerably smaller than the 30.71 and 38.30 achieved by the two other groups at the end of the fourth year. However, between similar

TABLE XI

COMPARISONS BETWEEN GROUPS USING MEANS OF RESULTS OF STEP TESTING

SUBJECT	GROUP	N	MEAN	S.D.	GROUP	N	MEAN	S.D.	OB.	DIF.	SIG. ¹
Math'scs	4/5	46	38.30	4.55	4/6aa	112	30.71	5.94	7.59		*
Reading	4/5	46	58.76	5.93	4/6aa	112	52.65	4.69	6.11		*
Science	4/5	45	47.82	4.09	4/6aa	110	43.50	5.97	4.32		*
Writing	4/5	46	45.26	8.24	4/6aa	107	37.76	8.35	7.49		*
Math'scs	4/6aa	112	30.71	5.94	4/6a	83	25.94	7.03	4.77		*
Reading	4/6aa	112	52.65	4.69	4/6a	82	44.51	10.10	8.14		*
Science	4/6aa	110	43.50	5.97	4/6a	82	37.39	8.88	6.11		*
Writing	4/6aa	107	37.76	8.35	4/6a	81	29.80	9.27	7.97		*
Math'scs	4/6a	83	25.94	7.03	4/7	23	16.52	1.34	9.42		*
Reading	4/6a	82	44.51	10.10	4/7	23	27.95	8.33	16.56		*
Science	4/6a	82	37.39	8.88	4/7	23	25.82	7.73	11.57		*
Writing	4/6a	81	29.80	9.27	4/7	22	22.36	7.29	7.44		*
Math'scs	5/5	19	274.30	7.43	5/6aa	39	262.50	5.85	11.80		*
Reading	5/5	17	62.94	2.40	5/6aa	37	58.10	5.77	4.84		*
Science	5/5	19	274.60	10.01	5/6aa	38	267.40	7.77	7.20		*
Writing	5/5	19	279.80	21.30	5/6aa	39	273.20	6.23	6.60		
Math'scs	5/6aa	39	37.87	5.85	5/6a	30	27.30	7.13	10.57		*
Reading	5/6aa	37	58.10	5.77	5/6a	30	45.40	15.23	12.70		*
Science	5/6aa	38	47.23	7.77	5/6a	30	41.26	6.81	5.97		*
Writing	5/6aa	39	44.36	6.23	5/6a	30	37.03	8.08	7.33		*
Math'scs	5/6a	30	27.30	7.13	5/7	12	23.50	6.40	3.80		
Reading	5/6a	30	45.40	15.23	5/7	12	36.83	11.30	8.57		
Science	5/6a	30	41.26	6.81	5/7	12	32.41	9.90	3.02		*
Writing	5/6a	30	37.03	8.09	5/7	12	27.50	6.20	9.53		*
Math'scs	6/5	11	35.90	4.11	6/6aa	18	26.05	5.32	9.85		*
Reading	6/5	10	62.30	2.40	6/6aa	19	59.31	3.20	2.99		**
Science	6/5	11	46.36	4.86	6/6aa	19	36.63	5.84	9.73		*
Writing	6/5	10	42.20	5.77	6/6aa	18	32.50	6.73	9.70		*
Math'scs	6/6aa	18	26.05	5.32	6/6a	8	28.12	8.06	2.07		
Reading	6/6aa	19	59.31	3.20	6/6a	8	61.25	4.48	1.94		
Science	6/6aa	19	36.63	5.84	6/6a	8	38.62	10.19	1.99		
Writing	6/6aa	18	32.50	6.73	6/6a	8	33.25	6.59	0.75		

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¹One per cent level of significance is indicated by "*"; five per cent by "**".

groups, 5/7 and 5/6a, at the end of the fifth year, the two means of 23.50 and 27.36 were different by only 3.86 points, which was not significant at the five per cent level of confidence.

Summary of STEP Mathematics Testing. In the calculations of the differences between group performances in Mathematics, the group which was predicted as being better academically achieved the higher mean score, except between the two average groups at the six-year level. In the latter comparison, the low average group performed 2.07 points better, but this difference was not significant. The observed difference of 3.80 raw score points between the groups 5/6a and 5/7 was not significant. All other comparisons between groups in Mathematics produced differences at the .01 level of confidence.

Comparisons Between Groups as Measured by STEP Reading Testing, Table XI. The range of the means for the four groups at the end of the fourth year was from 58.76 for the superior group to 27.95 for the slow-learners. The observed differences of means between adjacent groups at the end of the fourth year was 6.11, 8.14, and 16.56. These were all significant at .01 level of confidence. The groups predicted as being better academically scored higher in each comparison.

The trend of substantial differences between means at

the end of the fourth year was continued between the superior and the high average groups at the end of both the fifth and sixth years. Using the results of the same reading test, the four groups achieved means of 62.94, 58.10, 62.30 and 59.31. The difference of 4.84 points was significant at the one per cent level for the two preceding groups at the five year level, but between the two groups 6/5 and 6/6aa, the means were different by only 2.99 points, which were significant at the five per cent level. At the fifth year from the Reading test, significant differences were also found between the two average groups. The means, 58.10 for 5/6aa and 45.40 for 5/6a, were different by 12.70 raw score points, which were significant at the one per cent level.

In Reading, as in Mathematics, the two comparisons between the groups 5/6a and 5/7, and between groups 6/6aa and 6/6a, were not significant at the five per cent level of confidence. The difference of 8.57 points between the two means 45.40 and 36.83 of the two groups 5/6a and 5/7, produced a critical ratio of only 1.95. Similarly, the two means, 59.31 for the high average group 6/6aa, and 61.25 for the low average group 6/6a, produced a difference of only 1.94 raw score points.

Summary of STEP Reading Testing. The comparisons in reading followed the same pattern as in mathematics. The academically better group achieved the higher mean in comparisons

between groups, except between the two average groups at the sixth year. This latter difference was not significant. Also, the difference between the low average 5/6a and the slow-learners 5/7 was not significant. All other comparisons resulted in differences at the .01 level of confidence.

Comparisons Between Groups as Measured by STEP Science Testing, Table XI. The range of means between groups at the end of the fourth year was from 25.82 to 47.82. Between groups at the fifth year, a similar range, 32.41 to 47.23, was indicated, and at the sixth year, which did not include the seven-year programme, the range was 36.63 to 46.36. As in the other subjects, the groups predicted as being better academically achieved the higher means. However, at the sixth year level, only 1.99 points, which was not significant, separated the low and high average groups.

Between all adjacent groups at the fourth and fifth years in Science, significant differences between means were established at the .01 level of confidence. At the fourth year, the means 47.82 for 4/5, 43.50 for 4/6aa, 37.39 for 4/6a, and 25.82 for 4/7, produced differences of 4.32, 6.11, and 11.57. Between fifth year groups, 5/5 and 5/6a, means from scores of 274.6 and 267.4 were different by 7.20 points. Between the means 47.23 for group 5/6aa and 41.26 for 5/6a, the difference was 5.97. Between the low average and slow-learner groups at the fifth year, the means of 41.26 and 32.41 were different by 8.85 raw score points.

At the sixth year level, in Science, the mean of the superior group, 46.36, was greater than the mean of the high average group, 36.63, by 9.73 points, which was significant at the one per cent level of confidence.

Summary of STEP Science Testing. In Science, all comparisons of means indicated a significant difference in favour of the academically better group, except between the two average groups at the sixth year level. Of these two groups, the low average achieved the higher score by 1.99 points, but the difference was not significant.

Comparisons Between Groups as Measured by STEP Writing Testing, Table XI. Between all the groups, except the two average ones at the sixth year, a substantial difference between means of over six raw score points was discovered in favour of the groups predicted as being better academically.

The means of the four groups at the fourth year level were: the superior, 45.26, the high average, 37.76, the low average 29.80, and the slow-learners, 22.36. In each comparison between the preceding groups in Writing, the difference resulted in a one per cent level of confidence difference.

The difference of 7.33 points between the high average group mean of 44.36, and a mean of 37.03 of the low average group at the fifth year was significant at the one per cent

level. The mean of the slow-moving group, 27.50, produced an observed difference of 9.53 points when compared to the low average group mean of 37.03. This difference was also significant at the .01 level of confidence. However, between the mean of the superior group, 279.8, and that of the high average group, 273.2, at the fifth year in Writing, the observed difference of 6.60 was not large enough to indicate a significant difference.

At the sixth year, the superior and the high average groups performed significantly different, achieving means of 42.20 and 32.50. The observed difference of 9.70 raw score points was significant at the .01 level of confidence. However, no significant difference was indicated in Writing results between the two average groups at the sixth year. The two means, 32.50 and 33.25 produced a raw score difference of only 0.75 points. For the previous comparison, as in Mathematics, Reading, and Science, the higher mean was obtained by the low average group.

Summary of STEP Writing Testing. Six of the eight comparisons between means in Writing were significant at the one per cent level of confidence, in favour of the academically better group. The two comparisons which were not significantly different were between the superior and the high average groups at the fifth year, and between the two average groups at the

sixth year level.

TESTING FOR HOMOGENEITY OF VARIANCE

Because it may sometimes happen that one of the experimental conditions in an evaluation will serve to increase or decrease the variance as well as influence the mean of the variable being investigated, supplementary tests of the hypothesis of homogeneity of variance were applied to those groups whose means were significantly different as established by t-tests. The results of these tests were summarized in Table XII, and a description of significant findings are described below by subjects.

In Mathematics, Table XII indicates that between the two groups 4/5 and 4/6aa a significant difference in variance existed at the five per cent level of confidence. Also, between the low average group and the slow-learners at the fourth year, an F ratio of 27.50 produced a difference at the one per cent level of confidence. All other comparisons in Mathematics indicated no significant difference in variance.

Whereas the same groups were involved in testing for homogeneity of variance in Reading as in Mathematics, not the same differences were established. Between the superior and the high average groups at the fourth year, a difference in variance at the one per cent level was indicated in Reading.

TABLE XII

RESULTS OF TESTING HOMOGENEITY OF VARIANCE BETWEEN GROUPS

<u>SUBJECT</u>	<u>GROUP</u>	<u>NO.</u>	<u>VARIANCE</u>	<u>GROUP</u>	<u>NO.</u>	<u>VARIANCE</u>	<u>F RATIO</u>	<u>SIGNIFICANCE</u>
Mathematics	4/5	46	20.7	4/6aa	112	35.3	1.71	.05
Reading	4/5	46	35.3	4/6aa	112	22.0	1.60	NSD
Science	4/5	45	16.8	4/6aa	110	34.9	2.07	.05
Writing	4/5	46	68.0	4/6aa	107	69.8	1.02	NSD
Mathematics	4/6aa	112	35.3	4/6a	83	49.5	1.40	NSD
Reading	4/6aa	112	22.0	4/6a	82	114.0	5.18	.01
Science	4/6aa	110	34.9	4/6a	82	78.9	2.31	.05
Writing	4/6aa	107	69.8	4/6a	81	86.0	1.23	NSD
Mathematics	4/6a	83	49.5	4/7	23	1.8	27.50	.01
Reading	4/6a	82	114.0	4/7	23	69.4	1.64	NSD
Science	4/6a	82	78.9	4/7	23	59.8	1.32	NSD
Writing	4/6a	81	86.0	4/7	22	53.2	1.61	NSD
Mathematics	5/5	19	55.2	5/6aa	39	34.3	1.61	NSD
Reading	5/5	17	5.8	5/6aa	37	33.3	5.71	.01
Science	5/5	19	100.1	5/6aa	38	60.4	1.65	NSD
Mathematics	5/6aa	39	34.3	5/6a	30	50.9	1.48	NSD
Reading	5/6aa	37	33.3	5/6a	30	232.0	6.96	.01
Science	5/6aa	38	60.4	5/6a	30	46.4	1.30	NSD
Writing	5/6aa	39	38.9	5/6a	30	65.5	1.68	NSD
Science	5/6a	30	46.4	5/7	12	98.1	2.11	NSD
Writing	5/6a	30	65.5	5/7	12	38.4	1.70	NSD
Mathematics	6/5	11	16.9	6/6aa	18	28.3	1.67	NSD
Reading	6/5	10	5.8	6/6aa	19	10.3	1.77	NSD
Science	6/5	11	23.7	6/6aa	19	34.2	1.44	NSD
Writing	6/5	10	33.3	6/6aa	18	45.3	1.36	NSD

Also, between the two average groups at both the fourth and fifth year levels, differences at .01 level of confidence were found.

The testing for homogeneity of variance between adjacent groups in Science resulted in no discovered differences except at the fourth year level between the superior and high average groups, and between the two average groups. The trend of little significant difference in variance between groups continued in the results of Writing in Table XII. No difference in variance at the five per cent level of confidence was indicated in Writing between any groups.

Summary of Tests of Homogeneity. The purpose of the testing for homogeneity was to establish the reliability of differences between means as found by t-tests. In certain cases, the similarity of variance found seems to support differences in means. From the summary in Table XII, it may be noted that in four comparisons only, significant differences in variance at the one per cent level were indicated. Three other comparisons were significantly different at the five per cent level of confidence. The following groups listed below were those between which the differences between means may have been affected by differences of variance:

1. Mathematics between 4/5 and 4/6aa,
2. Mathematics between 4/6a and 4/7,

3. Reading between 4/6aa and 4/6a,
4. Reading between 5/5 and 5/6aa,
5. Reading between 5/6aa and 5/6a,
6. Science between 4/5 and 4/6aa, and,
7. Science between 4/6aa and 4/6a.

The significant differences between means found between groups using results from Writing testing were not affected by differences in variance.

SUMMARY OF COMPARISONS BETWEEN GROUPS

Table XIII was prepared to summarize the calculations made to compare the mean performances of adjacent groups. From this table, and from Tables XI and XII, the following observations are presented:

1. The number of students in each group was large enough to allow comparisons of means which could indicate possible trends, except at the sixth year level. The latter was composed of 10, 18, and 8 in the three groups. No students were available at the sixth year level of the slow-learner programme.
2. In all comparisons of means, except between the two average groups at the six-year level, the higher mean was achieved by the group predicted as academically better.
3. At the fourth year level, comparisons between means of all groups in Mathematics, Reading, Science, and Writing indicated that academically better groups achieved higher at a level which

TABLE XIII

SUMMARY OF TESTS OF SIGNIFICANCE BETWEEN GROUPS USING MEANS OF STEP TESTING

GROUPS COMPARED	MATHEMATICS		READING		SCIENCE		WRITING	
	D.B.M.	¹ H.O.F V. ²	D.B.M.	H.O.F V.	D.B.M.	H.O.F V.	D.B.M.	H.O.F V.
4/5 & 4/6aa	.01	.05	.01	NSD ³	.01	.05	.01	NSD
4/6aa & 4/6a	.01	NSD	.01	.01	.01	.05	.01	NSD
4/6a & 4/7	.01	.01	.01	NSD	.01	NSD	.01	NSD
5/5 & 5/6aa	.01	NSD	.01	.01	.01	NSD	NSD	
5/6aa & 5/6a	.01	NSD	.01	.01	.01	NSD	.01	NSD
5/6a & 5/7	NSD		NSD		.01	NSD	.01	NSD
6/5 & 6/6aa	.01	NSD	.05	NSD	.01	NSD	.01	NSD
6/6aa & 6/6a	NSD		NSD		NSD		NSD	

¹Difference Between Means²Homogeneity of Variance.³No significant Difference.

was significant at either the .01 or .05 level of confidence.

4. At the fifth year, comparisons between superior and high average groups, and between average groups, were significant at either a .05 or .01 level of confidence in Mathematics, Reading, and Science. In Writing, the difference between the two average groups was significant, but between the superior and high average groups, the difference was not significant at the five per cent level. In the comparisons between the low average and the slow-moving group at the fifth year, no significant differences were found in Mathematics, Reading, or Science.

5. At the sixth year level, a significant difference in performance between the superior and high average groups was discovered, as at the fourth and fifth years. However, no significant difference in performance between the two average groups at the sixth year in any subject was found.

6. Some of the differences between means discovered by t-tests were supported by the tests of homogeneity. At the fourth year level, considerable difference in variance was indicated between groups in Mathematics, Reading, and Science. However, the differences between means indicated in Writing do not seem to be affected by differences in variance. At the fifth and sixth year levels, no significant differences in variance were found between the groups in Mathematics, Science, or Writing. In Reading, there were significant differences at the fifth year

level between the superior and high average groups, and between the two average groups, to question the differences between means that had been found.

THE EFFECT OF VARIABILITY ON OVERLAP BETWEEN ADJACENT GROUPS

In the previous section which compared the performance of groups by using mean scores, the effect of the spread of the scores upon the mean was calculated. It was discovered that in more than twenty-five per cent of the comparisons, the tests for homogeneity of variance indicated significant differences of at least .05 level of confidence. However, from the preceding tests of variability a clear comparison between members within groups was not established. The amount of scatter within each group was important since each member of a group had been designated individually as belonging only to that group. Each group received instruction as a group, but was evaluated individually. Consequently, the size of each individual value within each distribution was important. To consider the size of each score, or the variability within each distribution, the following sections were studied:

1. Frequency tables of the scores of STEP testing presented in Table XIV, XV, and XVI;
2. The calculations concerning the number and percentage of students of one group performing above the means of adjacent groups; and,

3. The calculations concerning the number and percentage of students of one group performing below the means of adjacent groups.

Overlap Between Groups as Indicated by Frequency Tables of Scores of STEP Tests. Of much value in interpreting the success of the original predictive testing in selecting students for each programme, is the measurement of the amount of overlap present between adjacent groups. Ideally, the lowest score in a group predicted as being better academically should be higher than the best score of adjacent groups. It is the purpose of this section to examine the amount of overlap between all groups. To present this overlap Tables XIV, XV, and XVI were prepared.

Table XIV contains the scores of the groups in the fourth year in the four testing areas. It indicates the range of the superior group on the STEP Mathematics Test was 30 to 47 raw score points. At the same level, the high average group had a range of 13 to 46; the low average 9 to 39; and the slow-learners from 8 to 27. It is apparent from the frequency table in Mathematics, in Table XIV, that in each case, a considerable number of students in the group predicted as being lower academically, achieved better than the least capable students in the higher adjacent group. Indeed, not only in all cases are there many students whose scores overlap those of adjoining groups, but in a comparison between the scores of the two groups 4/7

TABLE XIV

FREQUENCY TABLE OF RAW SCORES OF STEP TESTING OF THE
FOURTH YEAR OF FIVE, SIX, & SEVEN-YEAR PROGRAMMES

RAW SCORES	MATHEMATICS		READING		SCIENCE		WRITING	
	4/5	4/6a	4/5	4/6a	4/5	4/6a	4/5	4/6a
68-69			2					
66-67			1					
64-65			7	6				
62-63			5	7				
60-61			11	9				
58-59			3	11				
56-57			5	13				
54-55			3	17				
52-53			4	12				
50-51			1	6				
48-49				11				
46-47			2	2				
44-45			2	3				
42-43				11				
40-41				3				
38-39				5				
36-37				1				
34-35				4				
32-33				3				
30-31				5				
28-29				2				
26-27				4				
24-25				5				
22-23				2				
20-21				1				
18-19				2				
16-17				1				
14-15				1				
12-13				2				
10-11				2				
8-9				1				
N=	46	112	83	23	46	112	82	21
	46	112	82	21	45	110	82	23
	46	112	82	21	46	107	81	22
					75			

and 4/6a, the scores of the former are completely within the range of the latter group in Science and Writing.

In Reading a similar situation is recorded in Table XIV. Of the 112 students in the high average group at the fourth year, 97 had scores equal to or higher than the lowest performer in the superior group. Similarly, only three participants in the slow-learner group had fewer correct than the lowest performer of the low average group.

In Table XV, the frequency table of performances of groups at the fifth year is composed of conversion scores since two levels of the tests were used. The trend of considerable overlap indicated in Table XIV continues in Table XV. One of the most serious situations is indicated between the groups 5/7 and 5/6a in Mathematics. The scores of the former group are completely within the range of the scores of the low average group. Similarly, for the groups 5/6a and 5/6aa in Science and in Writing, the scores of the low average group are within the range of the high average group.

Summary of Overlap as Indicated by Frequency Tables in Tables XIV, XV, XVI. Although the exact amount of overlap between groups is not indicated by a study of frequency tables, it is apparent that the ability of predictive testing used to create groups in Tables XIV to XVI was not precise enough to establish these groups without considerable overlap. It was,

FREQUENCY TABLE OF CONVERSION SCORES OF STEP TESTS FOR PUPILS
OF FIFTH YEAR OF FIVE, SIX, & SEVEN-YEAR PROGRAMMES

SCORES	MATHEMATICS				SCIENCE				WRITING			
	<u>5/5</u>	<u>5/6aa</u>	<u>5/6a</u>	<u>5/7</u>	<u>5/5</u>	<u>5/6aa</u>	<u>5/6a</u>	<u>5/7</u>	<u>5/5</u>	<u>5/6aa</u>	<u>5/6a</u>	<u>5/7</u>
319-320									1			
317-318												
315-316									1			
313-314									1			
311-312												
309-310												
307-308												
305-306												
303-304												
301-302												
299-300												
297-298-												
295-296												
293-294						1						
291-292									1			
289-290					1							
287-288					3				2	1		
285-286					1				2	3		
283-284	5				1	1			1	2		
281-282	1									2	2	
279-280	1					1		1	1	1		
277-278					2	1			1	9	3	
275-276	2				1	1	1					
273-274	2	1				2			1	6	1	
271-272	1				2	5	2		1	2		
269-270	3	3	1		2	3				2	3	
267-268	1	2			2	5	3		1	1	3	
265-266	2	8			1	1	1		2	6	3	
263-264		9	1		1	7	6				2	1
261-262		3	1	1	1	8	3			2		
259-260	1	8	3		1	1	3			1	2	
257-258		3	2	1			2	2	1		2	
255-256		1	1					2	1		3	5
253-254			1	2			2				1	2
251-252			3				2				1	
249-250			5				3	1				
247-248						1	2	2			2	
245-246			2	1				2				
243-244			4	1							2	2
241-242			1	1						1		
239-240			1	2				1				1
237-238									1			1
235-236			3	2				1				
233-234			1	1								
N=	19	39	30	12	19	38	30	12	19	39	30	12

however, indicated by the preceding frequency tables that the calculations in the two following sections of the number and percentage of students achieving above or below the means of adjacent groups should be completed. From this analysis of the overlap present, its significance should be established and evaluated.

Students of One Group Performing above the Mean of an Adjacent Group. To establish the importance of the overlapping of scores between adjacent groups, Table XVII was composed to indicate the number and the percentage of students in each group who performed on the STEP tests better than the mean of adjacent groups. In the table, the Group Mean column indicates the group which provided the mean. The scores of the other groups are analyzed to determine the number and percentage of students whose scores were above the mean of the group in the Group Mean column. For example, from the Mathematics Test, none of the twenty-three students in the group 4/7 performed better than the mean performance of the students in group 4/5. However, fourteen out of a total of 112 in group 4/6aa achieved better than the mean of the superior group. The percentage of students in a group who achieved higher than the mean of the group being compared, is indicated in a separate column.

In the first section of Table XVII, it is apparent that

FREQUENCY TABLE OF RAW SCORES OF STEP TESTING OF THE
SIXTH YEAR OF FIVE, SIX, & SEVEN-YEAR PROGRAMMES

Scores	Mathematics			Reading			Science			Writing		
	6/5	6/6 _{aa}	6/6 _a	6/5	6/6 _{aa}	6/6 _a	6/5	6/6 _{aa}	6/6 _a	6/5	6/6 _{aa}	6/6 _a
67-68						1						
65-66				1	1							
63-64				5	1	3						
61-62				2	5	1						
59-60				1	6	1						
57-58				1								
55-56					5	2						
53-54					1		1					
51-52							1		1			
49-50							2		1	1		
47-48							2	1		2		
45-46							2	2		1	1	
43-44								1		1	1	
41-42	2		1				2	1	1	2		1
39-40								1	3	2		2
37-38	4		1				1	3			2	
35-36	2	1						3			2	1
33-34		1	1					2			2	
31-32	1	2						2			4	1
29-30	2	2						2	1	1	3	
27-28		3	2					1			2	1
25-26		1										2
23-24		3	1								1	
21-22		2	1									
19-20		1							1			
17-18		2										
15-16											1	
13-14			1									
N=	11	18	8	10	19	8	11	19	8	10	19	8

the slow-moving group in the fourth year had very few students who achieved the mean of any of the other groups. The only overlap is the 8.6% and 18.1% of the group 4/7 who achieved better in Science and Writing than the mean of the low average group. The latter group, too, had 9.7% of its members achieving the mean of the superior group in Science.

Considerable attention was directed at the performance of members of the high average group in the fourth year as compared to the mean of the superior group. Between 12.5% to 26.3% of the former group achieved the mean of the superior group in all four subjects. However, the performance of the high average group was quite scattered since at least 86.7% of the group 4/5 achieved the mean performance of 4/6aa. Another example of considerable overlap between groups at the fourth year is between the two average groups. Between 24.6% to 33.7% of the group 4/6a achieved the mean of 4/6aa.

In the second section of Table XVII, the pattern of overlap is similar to that found in the fourth year. The slow-moving group had very few members who achieved the means of the superior or high average groups. However, the overlap found at the fourth year between the groups 4/7 and 4/6a in Science and Writing was also present at the fifth year, along with similar overlap in Mathematics and Reading.

In the comparisons of the groups 5/6aa and 5/5, the

TABLE XVII

NUMBER AND PERCENTAGE OF STUDENTS PERFORMING ABOVE THE MEAN OF ADJACENT GROUPS

PART A: FOURTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>4/7</u>			<u>4/6a</u>			<u>4/6aa</u>			<u>4/5</u>		
		GROUP N	ABOVE N	MEAN %TGE	GROUP N	ABOVE N	MEAN %TGE	GROUP N	ABOVE N	MEAN %TGE	GROUP N	ABOVE N	MEAN %TGE
Math'cs	4/5	23	0	0.0	83	1	1.2	112	14	12.5			
Reading	4/5	23	0	0.0	82	5	6.0	112	28	25.0			
Science	4/5	23	0	0.0	82	8	9.7	110	29	26.3			
Writing	4/5	22	0	0.0	81	2	2.4	107	17	15.8			
Math'cs	4/6aa	23	0	0.0	83	28	33.7				46	44	95.6
Reading	4/6aa	23	0	0.0	82	23	28.0				46	40	86.9
Science	4/6aa	23	1	4.3	82	21	25.6				45	39	86.7
Writing	4/6aa	22	1	4.5	81	20	24.6				46	40	86.9
Math'cs	4/6a	23	1	4.3				112	89	79.4	46	46	100.0
Reading	4/6a	23	0	0.0				112	95	84.8	46	45	97.8
Science	4/6a	23	2	8.6				110	93	84.5	45	45	100.0
Writing	4/6a	22	4	18.1				107	93	86.9	46	44	95.6

(Continued)

TABLE XVII: NUMBER AND PERCENTAGE OF STUDENTS PERFORMING
ABOVE THE MEAN OF ADJACENT GROUPS (Continued)

PART B: FIFTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>5/7</u>				<u>5/6a</u>				<u>5/6aa</u>				<u>5/5</u>			
		<u>GROUP ABOVE MEAN</u>		<u>%TGE</u>		<u>GROUP ABOVE MEAN</u>		<u>%TGE</u>		<u>GROUP ABOVE MEAN</u>		<u>%TGE</u>		<u>GROUP ABOVE MEAN</u>		<u>%TGE</u>	
		N	N			N	N			N	N			N	N		
Math'cs	5/5	12	0	0.0		30	0	0.0		39	0	0.0		19	18	94.7	
Reading	5/5	12	0	0.0		30	0	0.0		37	10	27.0		17	16	94.1	
Science	5/5	12	1	8.5		30	1	3.3		39	5	16.7		19	14	73.6	
Writing	5/5	12	0	0.0		30	2	6.7		39	9	23.0		19	11	57.8	
Math'cs	5/6aa	12	0	0.0		30	2	6.7									
Reading	5/6aa	12	0	0.0		30	1	3.3									
Science	5/6aa	12	1	8.5		30	3	10.0									
Writing	5/6aa	12	0	0.0		30	5	16.7									
Math'cs	5/6a	12	4	33.3						39	38	97.4		19	19	100.0	
Reading	5/6a	12	3	25.0						37	36	97.2		17	17	100.0	
Science	5/6a	12	1	8.5						38	37	97.3		19	19	100.0	
Writing	5/6a	12	6	50.0						39	38	97.4		19	19	100.0	

(Continued)

TABLE XVII: NUMBER AND PERCENTAGE OF STUDENTS PERFORMING
ABOVE THE MEAN OF ADJACENT GROUPS (CONTINUED)

PART C: SIXTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>6/6a</u>				<u>6/6aa</u>				<u>6/5</u>			
		<u>GROUP ABOVE MEAN</u>		<u>GROUP ABOVE MEAN</u>		<u>GROUP ABOVE MEAN</u>		<u>GROUP ABOVE MEAN</u>		<u>GROUP ABOVE MEAN</u>		<u>GROUP ABOVE MEAN</u>	
		N	%TGE	N	%TGE	N	%TGE	N	%TGE	N	%TGE	N	%TGE
Math'cs	6/5	8	2	25.0	18	1	5.6						
Reading	6/5	8	4	50.0	19	2	10.5						
Science	6/5	8	2	25.0	19	1	5.2						
Writing	6/5	8	0	0.0	18	2	11.1						
Math'cs	6/6aa	8	5	62.5				11	11	100.0			
Reading	6/6aa	8	6	75.0				10	9	90.0			
Science	6/6aa	8	6	75.0				11	11	100.0			
Writing	6/6aa	8	4	50.0				10	9	90.0			
Math'cs	6/6a				18	6	33.3	11	11	100.0			
Reading	6/6a				19	6	31.5	10	7	70.0			
Science	6/6a				19	6	31.5	11	10	90.9			
Writing	6/6a				18	7	38.9	10	9	90.0			

overlap of scores of the high average group above the mean of the superior group continues as in the fourth year, except in Mathematics. In the latter area, none of 5/6aa achieved the mean of the superior group, but in Reading 27.0%, in Science 16.7%, and in Writing 23.0% of the high average group did achieve the mean of group 5/5. Also, the overlap between the two average groups in the fifth year, indicated as between 6.7% and 16.7%, was not so pronounced as at the fourth year.

In the last section of Table XVII involving the sixth year, the trend of substantial overlap between the two average groups continued. In Mathematics 62.5%, in Reading 75.0%, in Science 75.0%, and in Writing 50.0% of the low average group achieved above the mean of the group 6/6aa. However, only between five and ten per cent of the high average group achieved the mean of the superior group at the sixth year.

Summary of Overlap Using the Number of Students Performing Above the Mean of Adjacent Groups. From Table XVII, a number of observations may be made:

1. Substantial majorities, generally between 80 and 100 per cent of the superior groups performed above the means of the other groups.
2. Very few of the slow-learner groups achieved the means of the other groups. At the fifth year, though, 8.5%, 25.0%, 33.3% and 50.0% of the slow-moving group performed above the mean of

the low average group.

3. Considerable overlap existed between the means of the superior groups and the performances within the high average groups. At the fourth year, at least 12.5%, at the fifth year at least 16.7% (except in Mathematics), and at the sixth year between 5.2% and 11.1% of the high average groups performed better than the means of the groups 4/5, 5/5, or 6/5.

4. Much overlap existed between the two average groups at all three levels. At the fourth year at least 24.6% of the low average group achieved the mean of the high average group. At the sixth year, the low average group performed better than the high average group.

In this section, calculations were made concerning the percentage of students who performed above the mean of groups predicted as being better academically. Since considerable overlap between the groups was found, further calculations were made in the next section concerning the number and percentage of students who performed below the mean of adjacent groups.

Students of One Group Performing Below the Mean of Other Groups. The previous section attempted to analyze the amount of overlap between the upper scores in distributions and the means of adjacent groups. Of similar significance is the amount of overlap between the lower scores of groups and the means of adjacent groups which have been predicted as being

poorer academically. In Table XVIII, in Mathematics, the first line indicates that there were two students out of 46 in the superior group who received scores below the mean of the high average group at the fourth year. The following sections continue to analyze the above type of description in Table XVIII while drawing attention to significant situations.

The first section of Table XVIII presents the overlap between groups at the fourth year level. Within the superior group in Mathematics, only 4.3% scored below the mean of the high average group. However, in Reading, Science, and Writing at least thirteen per cent performed below the mean of the latter group. The amount of overlap with members of the high average group as compared to the mean of the low average, and between the low average group and the mean of the slow-learners, was more significant. Between 13 and 20 per cent of the high average group were below the mean of the low average group. In Mathematics and Reading only 6.0% and 8.4% of the low average group were below the mean of the slow-learners, but 12.1% and 28.3% were below in Science and Writing.

The pattern of overlap was quite different for groups at the fifth year. Forty-two per cent of the superior group was below the mean of the high average group in Writing. There were no significant overlappings in the high average group with the mean of the low average. However, in Mathematics

TABLE XVIII

NUMBER AND PERCENTAGE OF STUDENTS PERFORMING BELOW THE MEAN OF ADJACENT GROUPS

PART A: FOURTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>4/6a</u>			<u>4/6aa</u>			<u>4/5</u>		
		<u>GROUP BELOW MEAN</u>		<u>N</u>	<u>GROUP BELOW MEAN</u>		<u>N</u>	<u>GROUP BELOW MEAN</u>		<u>N</u>
		<u>N</u>	<u>%TGE</u>		<u>N</u>	<u>%TGE</u>		<u>N</u>	<u>%TGE</u>	
Math'cs	4/6aa							46	2	4.3
Reading	4/6aa							46	6	13.0
Science	4/6aa							45	6	13.3
Writing	4/6aa							46	6	13.0
Math'cs	4/6a			112	23	20.5		46	0	0.0
Reading	4/6a			112	17	15.1		46	1	2.1
Science	4/6a			110	17	15.4		45	0	0.0
Writing	4/6a			107	14	13.0		46	2	4.2
Math'cs	4/7	83	8.4		1	0.8		46	0	0.0
Reading	4/7	82	6.0		2	1.7		46	0	0.0
Science	4/7	82	12.1		0	0.0		45	0	0.0
Writing	4/7	81	28.3		4	3.7		46	1	2.1

(Continued)

TABLE XVIII: NUMBER AND PERCENTAGE OF STUDENTS PERFORMING
BELOW THE MEAN OF ADJACENT GROUPS (CONTINUED)

PART B: FIFTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>5/6a</u>				<u>5/6aa</u>				<u>5/5</u>			
		<u>GROUP BELOW MEAN</u>		<u>%TGE</u>		<u>GROUP BELOW MEAN</u>		<u>%TGE</u>		<u>GROUP BELOW MEAN</u>		<u>%TGE</u>	
		<u>N</u>	<u>BELOW MEAN</u>	<u>N</u>	<u>%TGE</u>	<u>N</u>	<u>BELOW MEAN</u>	<u>N</u>	<u>%TGE</u>	<u>N</u>	<u>BELOW MEAN</u>	<u>N</u>	<u>%TGE</u>
Math'cs	5/6aa									19	0	0	0.0
Reading	5/6aa									17	1	1	5.8
Science	5/6aa									19	0	0	0.0
Writing	5/6aa									19	8	42.1	
Math'cs	5/6a					39	1	2.5		19	0	0	0.0
Reading	5/6a					37	1	2.7		17	0	0	0.0
Science	5/6a					38	2	5.2		19	0	0	0.0
Writing	5/6a					39	1	2.5		19	1	5.2	
Math'cs	5/7	30	10	33.3		39	1	2.5		19	0	0	0.0
Reading	5/7	30	6	20.0		37	0	0.0		17	0	0	0.0
Science	5/7	30	6	20.0		38	1	2.6		19	0	0	0.0
Writing	5/7	30	2	6.7		39	1	2.5		19	1	5.2	

(Continued)

TABLE XVIII: NUMBER AND PERCENTAGE OF STUDENTS PERFORMING
BELOW THE MEAN OF ADJACENT GROUPS (CONTINUED)

PART C: SIXTH YEAR LEVEL

<u>SUBJECT</u>	<u>GROUP MEAN</u>	<u>6/6aa</u>				<u>6/5</u>			
		<u>GROUP BELOW MEAN</u>		<u>GROUP BELOW MEAN</u>		<u>GROUP BELOW MEAN</u>		<u>GROUP BELOW MEAN</u>	
		<u>N</u>	<u>%TGE</u>	<u>N</u>	<u>%TGE</u>	<u>N</u>	<u>%TGE</u>	<u>N</u>	<u>%TGE</u>
Math'cs	6/6aa			11	0	0	0.0		
Reading	6/6aa			10	1	1	10.0		
Science	6/6aa			11	1	1	9.0		
Writing	6/6aa			10	1	1	10.0		
Math'cs	6/6a	18	12	66.6		11	0	0	0.0
Reading	6/6a	19	14	73.6		10	3	3	30.0
Science	6/6a	19	13	68.4		11	1	1	9.0
Writing	6/6a	18	11	61.1		10	1	1	10.0

33.3%, in Reading 20.0%, and in Science 20.0% of the low average were below the mean of the slow-learners.

In the sixth year section of Table XVIII, the pattern of overlap between members of the superior group and the mean of the high average was very similar to that of the fourth year with approximately ten per cent of the members below the mean of the high average group in Reading, Science, and Writing. A second important overlap at the sixth year also involved the high average group. More than sixty per cent of them were below the mean of the low average group in all four subject areas.

Summary of Overlap Using the Number of Students Performing Below the Mean of Adjacent Groups. In the calculations concerning the number of students performing below the mean of academically poorer groups, some percentages were large enough to be noted separately:

1. 13.0% of 4/5 performed below the mean of 4/6aa in Reading.
 13.3% of 4/5 performed below the mean of 4/6aa in Science.
 13.0% of 4/5 performed below the mean of 4/6aa in Writing.
2. 42.1% of 5/5 performed below the mean of 5/6aa in Writing.
3. 20.5% of 4/6aa performed below the mean of 4/6a in Mathematics.
 15.1% of 4/6aa performed below the mean of 4/6a in Reading.
 15.4% of 4/6aa performed below the mean of 4/6a in Science.
 13.0% of 4/6aa performed below the mean of 4/6a in Writing.

4. 66.6% of 6/6aa performed below the mean of 6/6a in Mathematics.
73.6% of 6/6aa performed below the mean of 6/6a in Reading.
68.4% of 6/6aa performed below the mean of 6/6a in Science.
61.1% of 6/6aa performed below the mean of 6/6a in Writing.
5. 33.3% of 5/6a performed below the mean of 5/7 in Mathematics.
20.0% of 5/6a performed below the mean of 5/7 in Reading.
20.0% of 5/6a performed below the mean of 5/7 in Science.

From the above summary and by reference to the description of overlap using the number of students above the means of adjacent groups from the previous section, the following observations may be made:

1. The least overlap in all three levels was found in the scores of the Mathematics, and the greatest on the Writing Test.
2. Not only did the scores of the high average groups overlap those of the highest scores of the superior groups, but also the scores of the latter groups were low enough to project below the means of the high average groups.
3. The amount of overlap at the upper levels of the two average groups was greater than the overlap of scores of the bottom of the high average groups below the means of the low average groups.
4. The two average groups at the sixth year overlapped so much as to be clearly only one group.

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In Table XIII - the summary of comparisons between groups

using the means of STEP Tests results - the differences in the performances of the groups in the four different programmes seemed to be positively established at the end of the fourth year in all subjects. However, these significant differences did not continue in all comparisons between groups to the end of the sixth year. At that level, positive differences seemed to have diminished generally in the skill subjects. Indeed, the performances of the low average and slower-learner groups seemed to have fused completely. It was possible that the similarity in performances could have been caused by a lack of success in differentiated instruction at the fifth and sixth years of schooling. It was also possible that the higher percentage of boys in the academically-lower groups caused a change in the relative performance of the groups. If the boys had reached a level of maturity closer to that of the girls than had existed earlier, the performances of the boys could have affected mean performances of the groups. This section presents the results of the calculations comparing the performances of the girls and boys in the low average and slower-learning groups at the end of the fourth, fifth, and sixth years. The results of these comparisons are presented in Table XIX.

Table XIX presents the results of using the Mann-Whitney U Test to compare the performances of girls and boys. At the fourth year level there were no significant differences in the

performances of the sexes in the low average group in Mathematics, nor in the slower-learning groups in Mathematics and Reading. However, in Reading the girls in the low average group performed significantly better at the one per cent level of confidence than did the boys.

At the fifth and sixth years levels in Reading and Mathematics, both sexes in the low average and slower-learning groups performed with no significant difference.

Thus in Mathematics there was no indication that the relative performances of girls and boys had changed as they progressed towards the end of the sixth year of schooling. In Reading, though, there is an indication that the performances of the boys were not equal to those of the girls at the end of the fourth year, but in the low average groups the two sexes perform similarly by the end of the fifth and sixth years of schooling.

TRANSFER AS AN ESTIMATE OF HOMOGENEITY WITHIN GROUPS

The original assignment of students to one of the C.F.P. programmes at the end of the students' first year, is not a permanent one. The Manual, in answer to the question, "Is it possible to move from one group to another?" stated:

Yes. In the schools operating under the plan, pupils have actually moved from the slow group to the average group, from the average group to the accelerated group, from the average group to the slow group and from the accelerated group to the average group. (Appendix A, p.52)

TABLE XIX

COMPARISONS BETWEEN THE PERFORMANCES OF GIRLS AND BOYS
ON READING AND MATHEMATICS STEP TESTS

<u>SUBJECT</u>	<u>GROUP</u>	<u>N</u>	<u>GIRLS</u>	<u>BOYS</u>	<u>OBSERVED U</u>	<u>CRITICAL U</u>	<u>PROBABILITY</u>	<u>DIFF.</u>
Math'cs	4/6a	83	34	49	575		.1652	
Reading	4/6a	82	34	48	1657		.0006	* ¹
Math'cs	4/7	23	9	14	69	26		
Reading	4/7	23	9	14	56	26		
Math'cs	5/6a	30	14	16	129.5	56		
Reading	5/6a	30	14	16	90.5	56		
Math'cs	5/7	12	3	9	20.5	1		
Reading	5/7	12	3	9	17	1		
Math'cs	6/6aa	18	12	6	16	11		
Reading	6/6aa	19	13	6	52.5	12		
Math'cs	6/6a	8	3	5	3		.125	
Reading	6/6a	8	3	5	2		.125	

¹Difference is significant at the one per cent level of confidence.

If teachers, working with the groups as established, find little need for transferring students to other programmes, the original assignment may be considered to be more accurate than one which required adjustment by transferring the student. It was the purpose of this section to investigate the number and kinds of transfers that occurred within the total population of the study.

From the Student Inventory Cards, information about transfers was tabulated and is presented in Table XX. This table indicates that there were fifty-one transfers out of the 416 original assignments. Of the 51, twenty-three were transfers between the two groups within the six-year programme. Six students were transferred from the superior group to the high average group, five of the low average to the seven-year programme, but only two from the latter to the six-year programme. Just transferring to a different group at the same level was evidently not sufficient adjustment for some students since twelve repeated one level. Of the twelve, six repeated grade one as the original assignment.

Summary of Transferring as a Solution to Mis-assignment.

Table XX indicates that 9.4 per cent of the students were transferred once to make a correction in the original assignment. Of these 39 students, twenty-three involved transfers within the six-year programme. Nine students involved the five-year

TABLE XX

AN ANALYSIS OF FIFTY-ONE TRANSFERS BETWEEN PROGRAMMES

ORIGINAL ASSIGNMENT	GROUP TRANSFERRED TO					
	Five-Yr Prog 4 th 5 th 6 th Tot yr yr yr	High Average Six-Yr Prog 4 th 5 th 6 th Tot yr yr yr	Low Average Six-Yr Prog 4 th 5 th 6 th Tot yr yr yr	Seven-Year Programme 4 th 5 th 6 th Tot yr yr yr	Repeat One Level 4 th 5 th 6 th Tot yr yr yr	
FIVE-YEAR PROGRAMME		2 2 2 6				
SIX-YEAR PROGRAMME, HIGH AVERAGE	3 3		3 1 4			
SIX-YEAR PROGRAMME, LOW AVERAGE		13 4 2 19		3 2 5	6 6	
SEVEN-YEAR PROGRAMME			2			
REPEAT GRADE ONE					5 1 6	
TOTAL	3 3	15 6 4 25	5 1 6	3 2 5	11 1 12	

programme, and seven concerned the slower-learning group. The two latter groups must receive special consideration since the continuity of their programmes must have been broken by the transfers.

THE USE OF NON-PARAMETRIC STATISTICS TO COMPARE PERFORMANCES OF GROUPS

In earlier sections of Chapter IV, comparisons between groups on their performances on STEP Tests were carried out using conventional t-tests. However, in many of the comparisons, tests of homogeneity indicated that the variances of groups' scores being compared were so different that the reliability of the results of the t-tests was seriously reduced. Also, the number of students in groups at the fifth and sixth years were as small as eight; consequently, a further check of the reliability of using comparisons of means was desirable.

In this section, groups were re-compared using a non-parametric test, the Mann-Whitney U Test, to determine if the significant differences previously found were valid. A summary of the results of this testing is presented in Table XXI.

From the table it may be concluded that in every comparison except one, the non-parametric testing supported differences found originally using parametric t-test at the one per cent level of confidence. The one exception is in Reading between

TABLE XXI

SUMMARY OF THE USE OF PARAMETRIC AND NON-PARAMETRIC STATISTICS
TO COMPARE PERFORMANCES OF GROUPS ON STEP TESTS RESULTS

<u>SUBJECT</u>	<u>GROUPS COMPARED</u>			<u>DIFFERENCES BETWEEN GROUPS</u>		
				<u>D.B.M.</u> ¹	<u>U TEST</u> ²	<u>H. of V.</u> ³
Math'cs	4/5	&	4/6aa	.01	.01	.05
Science	4/5	&	4/6aa	.01	.01	.05
Math'cs	4/6aa	&	4/6a	.01	.01	N.S.D.
Reading	4/6aa	&	4/6a	.01	.01	.01
Science	4/6aa	&	4/6a	.01	.01	.05
Math'cs	4/6a	&	4/7	.01	.01	.01
Math'cs	5/5	&	5/6aa	.01	.01	N.S.D.
Reading	5/5	&	5/6aa	.01	N.S.D.	.01
Reading	5/6aa	&	5/6a	.01	.01	.01
Math'cs	5/6a	&	5/7	N.S.D.	N.S.D.	
Math'cs	6/5	&	6/6aa	.01	.01	N.S.D.
Reading	6/5	&	6/6aa	.05	N.S.D.	N.S.D.
Science	6/5	&	6/6aa	.01	.01	N.S.D.
Writing	6/5	&	6/6aa	.01	.01	N.S.D.
Math'cs	6/6aa	&	6/6a	N.S.D.	N.S.D.	
Reading	6/6aa	&	6/6a	N.S.D.	N.S.D.	
Science	6/6aa	&	6/6a	N.S.D.	N.S.D.	
Writing	6/6aa	&	6/6a	N.S.D.	N.S.D.	

¹Difference Between Means calculated using t-test.

²Mann-Whitney U Test.

³Homogeneity of Variance.

the superior and high average groups at the fifth year level. The results of applying the Mann-Whitney U Test indicated that there is no significant difference at either the .01 or .05 level of confidence between the two groups.

SUMMARY OF CHAPTER

This chapter has presented the data from the evaluative testing of students. It has attempted to analyze the performances of the four groups by the use of statistical computation of the scores of STEP testing. This statistical computation has been analyzed and explained. The implications and conclusions drawn from these analyses will be presented in the final chapter.

CHAPTER V

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This study has attempted to investigate the success of the method used to assign students to the programmes within the C.P.P. of Edmonton Public Schools. The screening technique to be evaluated consisted of placing students according to their chronological ages, intelligence quotients, and scores achieved on standardized tests in arithmetic and reading.

The success of groups at various levels of the three programmes was measured by administering STEP Tests in Mathematics, Reading, Science, and Writing. By presenting frequency tables of scores of the performances of the above groups, and by calculating the mean performances of the groups, and the number and percentage of students above and below means of adjacent groups, the success of predictive testing in creating groups with differing educational requirements was evaluated. However, the procedures necessitated an extensive field study which contained many apparently uncontrollable factors which might affect the validity of the study. In Chapter I it was recognized that the C.P.P. was undergoing development during the schooling of all participants. Placement policy was interpreted individually by seven schools, so

there must have been diversity in practice. Parents have affected placement by resisting attempts to place children in either the five or seven-year programmes. Teachers have improvised individually to offer programmes suitable for groups in their classrooms. However, despite the lack of rigid control over conditions within the schools, the following hypotheses have been tested, and statistical data support what appears to be valid conclusions.

CONCLUSIONS

Hypothesis I. There will be no significant differences between mean performances of the following groups in achievement as measured by STEP Tests in Mathematics, Reading, Science, and Writing:

a. Pupils in the fourth year of the five-year programme, and those in the fourth year of the six-year programme, high average group.

Comparisons of mean performances of the superior and high average groups indicated that on the Reading and Writing tests, the former group performed significantly better at the one per cent level of confidence. However, differences found on Mathematics and Science were considered invalid because of significant differences in variances.

To establish comparative performances of the two groups on the Mathematics and Science tests, non-parametric U tests

were calculated. The latter testing indicated that performances were significantly different at the .01 level of confidence.

The null hypothesis was rejected for performances on Mathematics, Reading, Science, and Writing.

b. Pupils in the fourth year of the six-year programme, high average group, and those in the fourth year of the six-year programme, low average group.

Between the two average groups at the fourth year level, the means were significantly different at the one per cent level in all four subject areas. However, in only Mathematics and Writing were the variances homogeneous. Use of the U Test to determine comparative performances of the groups on Reading and Science indicated that the high average groups performed significantly better at the .01 level of confidence.

The null hypothesis was rejected for performances on Mathematics, Reading, Science, and Writing.

c. Pupils in the fourth year of the six-year programme, low average group, and those in the fourth year of the seven-year programme.

The low average group at the fourth year performed significantly better than the slower-learning group in Reading, Science, and Writing. However, on the Mathematics, although

the means were significantly different at the one per cent level, the variances were also significantly different. The U Test indicated that performances on Mathematics for the two groups were significantly different at the one per cent level of confidence.

The null hypothesis was rejected for performances on Reading, Science, Writing, and Mathematics.

d. Pupils in the fifth year of the five-year programme, and those in the fifth year of the six-year programme, high average group.

The superior group at the fifth year performed significantly better than the high average group on Mathematics and Science. Although the mean values in Reading were significantly different at the one per cent level, the variances of the two distributions were also significantly different. The non-parametric U test indicated that the two groups did not perform significantly differently in Reading. There was no significant difference between the performances of the two groups on Writing.

The null hypothesis was accepted for the superior and high average groups at the fifth year on Reading and Writing. The null hypothesis was rejected for performances between these two groups on Mathematics and Science.

e. Pupils in the fifth year of the six-year programme, high average group, and those in the fifth year of the six-year programme, low average group.

There were significant differences at the one per cent level on Mathematics, Science, and Writing between the two average groups at the fifth year level. The variances of the distributions of scores on Reading of the two groups were significantly different; however, U Test calculations indicated that the performance of the high average group was significantly better than that of the low average in Reading.

The null hypothesis for the high and low average groups at the fifth year was rejected for performances on Mathematics, Science, Writing, and Reading.

f. Pupils in the fifth year of the six-year programme, low average group, and those of the fifth year of the seven-year programme.

At the fifth year, on Science and Writing, the significant differences in mean values were supported by homogeneity of variances. In the results of Mathematics and Reading tests there were no significant differences in the performances of the low average and slower-learner groups.

The null hypothesis was accepted for performances of the low average and slower-learner groups at the fifth year on Mathematics and Reading. The null hypothesis for these two groups was rejected on Science and Writing.

g. Pupils in the sixth year of the five-year programme, and those in the sixth year of the six-year programme, high average group.

The mean scores of the superior group at the sixth year were significantly better than those of the high average group in all four subject areas. These differences were supported by similarity of variances. However, the differences on Reading were significantly better at only the five per cent level of confidence. Use of the non-parametric U Test indicated that there was no significant difference in the performances of the superior and high average groups at the sixth year level on Reading.

The null hypothesis was rejected on Mathematics, Science, and Writing. The null hypothesis was accepted on Reading.

h. Pupils in the sixth year of the six-year programme, high average group, and those in the sixth year of the six-year programme, low average group.

There were no significant differences between the means of the two average groups at the sixth year level in any of the four subjects. The U Test also indicated that there were no significant differences in the performances of the two groups.

The null hypothesis was accepted on Mathematics, Reading, Science, and Writing.

Summary of Conclusions from Hypothesis I. At the fourth year level all groups performed significantly differently from the others in all four subject areas.

At the fifth year level, differences between the groups continued, but not so consistently in all subjects. Between the superior and high average groups there were significant differences in performances on Mathematics and Science. Between the two average groups significant differences as between fourth year groups were found in all four subjects. However, the low average and slower-learning groups at the fifth year were similar in their performances in skill areas of Mathematics and Reading.

At the sixth year, significant differences between the superior and high average groups were found in the Mathematics, Reading, Science, and Writing, but between the two average groups there were no significant differences in any of the four subject areas.

Hypothesis II.

There will be no significant differences between the mean performances of girls and that of boys at the end of the fifth and sixth years, as measured by STEP Tests.

Comparisons of the performances of girls and boys by the non-parametric U test indicated that on the Reading test there was a significant difference between the performances of girls and boys of the low average group. However, on the

Mathematics test, there were no significant differences in the performances of girls and boys in either group at the fourth year.

Comparisons at the fifth and sixth years indicated that there were no significant differences in the performances of the sexes in either the low average or slower-learning groups. The null hypothesis was accepted.

Summary of Conclusions from Hypothesis II. Statistical results support the conclusion that performances at the fifth and sixth year levels may be affected by maturational sex factors, and that if boys during predictor testing were performing below the performance of girls, that this difference may have disappeared by the end of the sixth year of schooling.

Hypothesis III.

There will be no students in one programme of the C.P.P. who perform better than the mean of groups in other programmes at the same level.

In this evaluation, recognition was given to the performance of individual students within groups by calculating the number and percentage of students who performed better than the mean performance of adjacent groups.

Comparisons between the performances of the high average and superior groups at the fourth year indicated that between 12.5 and 26.3 per cent of the high average group performed better than the mean of the superior group in all

four subjects. In the calculations concerning the low average at the fourth year and the mean of the superior group, there were some members of the low average group that achieved the mean of the superior group.

Comparisons between the average groups at the fourth year indicated that at least twenty per cent of the low average group achieved the mean of the high average group in all four subjects.

Calculations concerning the percentage of the slower-learning group who performed better than the means of the low average ones indicated that at the fourth year the percentage of overlap was insignificant except on Writing. In the slower-learning group, 18.1 per cent achieved the mean of the low average group on Writing.

At the fifth year the amount of overlap between the high average and superior groups was not so large as at the fourth year in all subjects. None of the high average group achieved the mean of the superior on Mathematics, but 16.7, 23.0, and 27.0 per cent did on Science, Writing, and Reading. As at the fourth year, some of the low average group achieved the mean of the superior, but only on Science and Writing. In comparing the superior group with the mean of the high average, it was noted that only 57.8 per cent of the superior group achieved the mean of the high average group on Writing.

At the sixth year level, calculations indicated that

on Mathematics, Reading, and Science, at least one quarter of the low average group achieved the mean of the superior group. There was no student in the low average group who achieved the mean of the superior group in Writing. Between 5.2 and 11.1 per cent of the high average group achieved the mean of the superior group.

Between the two average groups at the sixth year, at least 50 per cent of the low average group achieved the mean of the high average group.

Thus, at all three levels, substantial percentages of students in one group performed above the mean of groups predicted as being academically better.

The null hypothesis was rejected.

Hypothesis IV.

There will be no students in one programme of the C.P.P. who perform below the mean of groups in other programmes at the same level.

Calculations concerning overlap below the mean of a group by members of a group predicted as being better academically, indicated percentages of students which may be important.

In the comparisons between the superior and high average groups at the fourth year on Mathematics, two students, or 4.3 per cent of the superior group performed below the mean of the high average. However, 13 per cent of the

superior group performed below the mean of the high average group on Reading, Science, and Writing.

In the calculations concerning the two average groups at the fourth year, more than 13 per cent of the high average group performed below the mean of the low average group in all four subject areas.

At the fourth year level there was overlap between the low average groups and the mean of the slower-learning groups. On Reading, 6.0 per cent, on Mathematics, 8.4 per cent, on Science, 12.1 per cent, and on Writing, 28.3 per cent. In calculations concerning performances of the high group, it was discovered that 3.7 per cent of the group performed below the mean of the slower-learning groups in Writing.

At the fifth year, calculations concerning the average groups indicated that although overlap was present, the amount was much less than at the fourth year. On Science, and Writing 10.0 and 16.7 per cent of the low average group achieved the mean of the high average group.

In calculations concerning the slower-learning group at the fifth year, it was noted that the number of the group was only twelve. Of these, six achieved the mean of the low average group on Writing, four on Mathematics, and three on Reading.

At the sixth year level, calculations indicated that one student out of ten in the superior group performed below

the mean of the high average group in Reading, Science, and Writing. Three members of the superior group performed below the mean of the low average group on Reading, and one student on Science and Writing. For the high average group, more than 60 per cent of the group performed below the mean of the low average in all subject areas. As found in the previous section, the two average groups at the sixth year level performed so much alike that they could be considered to be one group.

Thus, at all three levels, substantial percentages of students in one group performed below the mean of groups predicted as being academically poorer.

The null hypothesis was rejected.

Summary of Conclusions from Hypotheses III and IV.

The amount of variance in the scores of every group produced substantial percentages of students who performed better than the means of groups predicted as being academically better, and large percentages of students who performed below the means of groups predicted as academically slower.

The type of analysis used in the above calculations deserves special notes since statistical standards, such as levels of confidence, were not suitable to estimate the value of the overlap. For example, on Mathematics testing between the two average groups at the fourth year, significant

differences at the one per cent level of confidence were found between mean score values. Tests of homogeneity of variance indicated that no significant differences in variance existed. Of what value then are Hypotheses III and IV in supporting or criticizing the apparent statistical difference in performance of these two groups? Calculations for these two hypotheses indicated that 33.7 per cent of the low average group performed above the mean value of the scores of the high average group. Also, 20.5 per cent of the high average group performed below the mean of the low average group. An inspection of the frequency table for Mathematics in Table XIV indicated that only nine members out of 112 of the high average group exceeded the highest score achieved by members of the low average group. Only four members of the 83 members of the low average group received scores less than the lowest score of members of the high average group. It was apparent then from the example, that any overlap above or below the mean of a group by members of an adjacent group, must be considered as a situation in which performances of the two groups were so closely alike that proposing different academic programmes for the groups must respect the fact that abilities within the groups are very similar.

To conclude the above point of view, the following table of comparisons between groups was prepared to indicate

situations in which overlap tends to nullify significant differences between means as found in Hypothesis I.

TABLE XXII

SUMMARY OF OVERLAP BETWEEN GROUPS
ON STEP TESTS RESULTS

<u>SUBJECT</u>	<u>GROUPS COMPARED</u>		<u>PERCENTAGE OF OVERLAP</u>	
			<u>Above</u>	<u>Below</u>
Math'cs	4/6aa	and 4/6a	33.7	20.5
Math'cs	5/6aa	and 5/6a	6.7	2.5
Math'cs	6/5	and 6/6aa	5.6	0.0
Reading	4/5	and 4/6aa	25.0	13.0
Reading	4/6a	and 4/7	0.0	6.0
Reading	6/5	and 6/6aa	10.5	10.0
Science	4/6a	and 4/7	8.6	12.1
Science	5/5	and 5/6aa	16.7	0.0
Science	5/6aa	and 5/6a	10.0	5.2
Science	5/6a	and 5/7	8.5	20.0
Science	6/5	and 6/6aa	5.2	9.0
Writing	4/5	and 4/6aa	15.8	13.0
Writing	4/6aa	and 4/6a	24.6	13.0
Writing	4/6a	and 4/7	18.1	28.3
Writing	5/6aa	and 5/6a	16.7	2.5
Writing	5/6a	and 5/7	50.0	6.7
Writing	6/5	and 6/6aa	11.1	0.0

The above list has indicated all those comparisons which may not be considered to include groups that are mutually exclusive because of significant differences of

means. However, from Hypothesis I, there is one comparison in which the participants were not only significantly different according to a comparison of means, but also who were not involved in any overlap in Hypotheses III and IV. This comparison in which a true difference appeared to exist was at the fifth year level between the superior and high average groups in Mathematics. All other comparisons involved a very serious overlap in the level of scores between groups.

Hypothesis V.

There will be some students in each programme of the C.P.P. who have been transferred from the original programme assignment.

Considering all students involved in transfers, the original predictive testing may be indicated as being an incorrect one for 9.4 per cent of the students in the study. However, 23 of the 39 students involved in transfers were in the six-year programme, and moved between the low and high average groups. The other transfers concerned the five and seven-year programmes. In these situations, a transfer involved a break in the continuity of the programmes, and as such must be considered as adjustments in programmes, rather than as inconsequential movements within a large group to facilitate classroom organization within a school.

Of the sixteen transfers that involved a change in programme, six were transferred from the five-year programme

to the six-year programme, high average group, and five from the six-year programme, low average group to the seven-year programme. These eleven students may be considered to have been transferred to a programme for academically-poorer students. There were, however, three students transferred from the six-year programme, high average group to the five-year programme, and two from the seven-year programme to the six-year programme, low average group. These five students may be considered to be transfers to an academically-superior group. Thus, there were more than twice as many students transferred to programmes for academically-poorer students than there were to programmes for better students.

The hypothesis was accepted.

Summary of Conslusions from Hypothesis V. At the time of evaluative testing in the study, transfers between groups had been completed for that year. Therefore, within the administrative policy in each school, all adjustments in assignments had been arranged, and one may assume that teachers were satisfied that members of each group indeed belonged in only that group. However, calculations concerning the comparative performances of groups on the three programmes indicated that there were not consistent significant differences between them. These calculations included the placement from transfers, and not that of original assignment. Therefore, although some students were moved from one group to another,

transferring was not successful in correcting mis-assignment by original placement techniques.

IMPLICATIONS OF THIS STUDY

The purpose of this study was to investigate the accuracy of techniques used in the Edmonton Continuous Progress Plan to assign students to groups within three different programmes. In the investigation a basic principle adopted was that efficient placement techniques at the end of the first year of a pupil's schooling would result in the organization of groups which would perform academically at levels different from one another. Members of the superior group on the five-year programme would achieve better than would members of the high average group on the six-year programme. All groups would be organized homogeneously so that instruction could be adapted to the needs of each group. As a result of using the above basic principle in evaluating screening techniques, conclusions from the investigation seemed to involve other details of the plan, as well as placement methods. This section, then, was concerned with not only the evaluation of placement procedures, but also implications about the general operation of the C.P.P.

The first method used for evaluating the exclusiveness of the groups was to identify differences between the mean performances of the groups on Mathematics, Reading, Science,

and Writing tests. It was found that between the superior and high average groups, significant differences existed, except on Reading, through the fourth, fifth and sixth years. Between the two groups of the six-year programme, significant differences in all subjects existed at the fourth and fifth years, but at the sixth year no significant differences in group performances were indicated for any subject. In comparisons involving the low average and slower-learning groups, their performances were significantly different in all subject areas at the fourth year. However, at the fifth year, no significant differences were found in the skill subjects. Comparisons for these two groups were not completed at the sixth year level.

As a result of this first method of comparing groups one may conclude that not all the groups had maintained their individual identities during the fourth to sixth years of schooling in all subject areas. The groups on five-year programmes appeared to have maintained a group performance level that was definitely better than the high average groups, except on Reading. However, it must be noted that Level IV of the STEP Test in Reading was used for all the groups, but that Level III was available in the other subjects. As indicated in Table XVI, the concentration of scores within five raw score points of the total of the test could have

seriously affected the validity of the results at the five and six year level. Taking into consideration the problem of the accuracy of the results on Reading, one may conclude from the calculations comparing mid-point scores, that there was generally an exclusiveness about the performances of the superior groups to the end of the sixth year of schooling.

The disappearance of positive differences on Mathematics and Reading at the fifth year level, and in all four subjects at the sixth year level, suggested that as average and slow-learner groups progressed into the fifth and sixth years, differentiation of instruction with the groups that had been established, ceased to produce differences in performance. This trend of the merging of performances of the slow-moving and low average groups in the last two years of elementary school may have been influenced by factors not resolved in the study. An attempt was made in the study to determine the effect of sex at the fifth and sixth years on performance; no positive differences were found. It is possible that as a result of the performance of boys at the end of elementary school matching that of the girls, the differences that had existed originally in the groups had been diminished. It is also possible that the methods of instruction used by primary teachers, and the materials available to them are more suitable for the type of group instruction

required by the C.P.P. Consideration must also be extended to another possible factor. Students participating in the study at the sixth year level were the first students to be involved in the C.P.P. It is logical to assume that teaching staffs would have become more skilled in teaching and organizing techniques and methods for the fifth and fourth year groups, and so could have affected the relative performances of the groups.

At the end of the first series of evaluations using comparisons between mid-scores, indications existed that groups that had been created performed differently from one another as groups at the end of four years of schooling, but may not have maintained their separate identities through to the end of the sixth year of schooling. To further examine the accomplishments within groups, the number and percentage of students in each group who performed above or below the means of adjacent groups were calculated. Ideally, no member of a group predicted as academically-poorer than another group should perform so well as any member of the latter group. Conversely, no member of a group predicted as academically-better than other groups should have a member of its group perform more poorly than members of the latter groups. However, because the predictor tests have less than one hundred per cent validity, certainly some overlap must be

accepted. In over one half of the comparisons there were percentages of students in one group who performed above the mean of a group predicted as being academically-better or below the mean performance of a group predicted as academically-poorer. Although there can be no percentage of overlap which, if exceeded, must be considered as a situation which would prove conclusively that the two groups could not profit from different types of instruction, the amount of overlap present between groups in the study must question the exclusiveness of the requirements of the groups. Of the seventeen comparisons involving percentage of overlap, only six were in skill subjects. There were eleven other comparisons involving overlap. These were eleven out of a total of sixteen comparisons between groups in Writing and Science. If it may be assumed that overlap involving means of groups seriously question the separate identities of groups, teaching procedures for the groups must give cognizance to the similarities of performances within the groups.

The previous summary appeared to indicate that the groups as created in the study may not be exclusive enough to profit from differentiated instruction. However, subjects such as science and language may be considered to be less structured and to have objectives more related to the social life of students than skill areas such as arithmetic. Consequently, the great deviations within the frequencies,

and the larger amounts of overlap as compared to skill areas, may be the result of diversity in teaching approach and techniques within these non-skill areas.

For the previous analyses, groups were organized according to the current programme assignment of the student at the time of evaluative testing. Schools already had opportunity to correct any mis-assignment that had been created by original predictive testing. In the study, however, an insignificant number of students, sixteen out of 402, had been involved in a transfer between groups, which had involved a change of programme. An analysis of the kind of transfer indicated that more than twice as many students were transferred to programmes for academically-poorer students than to those programmes for academically-better students. It would appear that teachers were more concerned about students who could not keep up with the assigned group than they were with those who were achieving well enough to be transferred to a group that was more demanding academically. However, no record was kept in any school of requests for transfers by teachers which were opposed by parents and were consequently incompleted. Regardless of the reasons, results of testing within the study indicated through studying overlap that more transfers could have been completed than the sixteen that were actually carried out.

Summary of Implications. Since the number of students who performed similarly to students in adjacent groups suggested that the predictive value of the screening techniques may be too general to select accurately students for the four groups of the Continuous Progress Plan, serious recommendations must be proposed.

First, consideration must be given to changing basic group procedures within the Plan. Current techniques used for assignment, including transfers, may not be establishing exclusive groups as generally considered to be needed for successful group instruction; therefore, further evaluation of testing and transfer practices are most necessary. However, the task of selecting permanent groups to work together in all subjects may be too formidable an assignment for any known techniques. Other practices for grouping students for instructional purposes should be explored.

Second, consideration must be given to teaching techniques with the Plan. A major trend in the results of the investigation was the gradual fusing in performance of the groups as they progressed from the fourth to the sixth year levels. Teaching practices at the primary level have been modified most extensively in Edmonton within the last decade. Arithmetic textbooks have never been used in the first two years of schooling, and the introduction of multiple-author-

ization of readers have forced the primary programmes to be flexible and up-to-date. However, the same forces have not existed at the fourth to sixth year levels to produce up-to-date practices. The reading and arithmetic programmes have been dictated by the same textbooks for almost two decades. The more senior teachers work at the Division II level. Consequently, one of the major factors to be considered in the reduction of positive differences in the performances of groups during the last three years of elementary schooling, is the inadequacy of the present group instruction at those levels designed to stretch students academically. For any plan of differentiated instruction, teachers must be prepared for leadership in the special features of the programme, and must be supplied with the materials to make execution of the plan possible.

RECOMMENDATIONS FOR FURTHER STUDY

The current study was the first attempt to investigate practices within Edmonton's Continuous Progress Plan. From its investigation, many further evaluations were suggested. The following are presented for consideration:

1. That a comparative study be undertaken to evaluate academic achievement in graded and continuous progress plan organization.
2. That a study be undertaken to evaluate the effect of participation in a Continuous Progress Plan on social and

personal development.

3. That a comparative study be undertaken of the performance of students in their fourth, fifth, and sixth years of each of the four groups: the superior, average, and slow-learner groups. It is necessary to extend the investigation of the current study to re-evaluate the trend toward the diminishing need for separating the slow-learners from the average groups as the sixth year is approached.

4. That a study be undertaken to evaluate current practices to provide for differentiated instruction. The programme for the superior group must be investigated, especially for the first and fifth years of schooling.

5. That a study be undertaken to evaluate the success of participants in the Continuous Progress Plan in the junior-high schools.

6. That a study be undertaken to evaluate other placement techniques which may be used to assign students to homogeneous groups of a continuous progress plan.

7. That a study be undertaken of the non-skill area of the elementary school programme so that the scope of all phases of the programmes can be developed to provide for continuous growth throughout the whole programme.

8. That a study be undertaken to establish the effect of preparation of pre-schoolers by parents, and the effect of

continuing home support through the second to the sixth years of schooling.

9. That a study be undertaken to survey methods of evaluating student progress in a continuous progress plan, and to recommend suitable principles in reporting to the home.

10. That a study be undertaken to evaluate methods of organizing classrooms to determine the effect of group inter-action on pupil performance.

11. That a study be undertaken to evaluate transferring between programmes to determine its most effective use to adjust mis-assignment. The effect of establishing major placement evaluation at the end of the second year as well as the first, the academic performance of pupils transferred, and the effect of transferring at different levels and between the various programmes are all important factors needing evaluation in a continuous progress plan which uses transfers.

BIBLIOGRAPHY

A. BOOKS

- Anastasi, Anne, Differential Psychology. New York: Macmillan Company, 1958. 664.
- Goodlad, John I., and Robert H. Anderson, The Nongraded Elementary School. New York: Harcourt, Brace and Company, 1959. 243.
- Millard, Cecil V., Child Growth and Development in the Elementary School Years. Boston: D.C. Heath and Company, 1958. 512.
- Siegel, Sidney, Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956. 312.
- Travers, Robert M.W., An Introduction to Educational Research. New York: The Macmillan Company, 1958. 466.
- Walker, Helen M., and Joseph Lev, Elementary Statistical Methods. New York: Henry Holt and Company, 1958. 302.
- Wert, James E., C.O. Neidt, and J.S. Ahmann, Statistical Methods in Educational and Psychological Research. New York: Appleton-Century-Crofts, Inc., 1954. 435.
- Ulich, Robert, History of Educational Thought. New York: American Book Company, 1945. 412.

B. ENCYCLOPAEDIA ARTICLES

- Goodlad, John I., "Classroom Organization," Encyclopedia of Educational Research, Third Edition. (Edited by Chester W. Harries). New York: The Macmillan Company, 1960. 221-226.
- Herrick, Virgil E., "Elementary Education - Programs," Encyclopedia of Educational Research, Third Edition. (Edited by Chester W. Harries). New York: The Macmillan Company, 1960. 430-442.

Otto, Henry J., and Dwain M. Estes, "Accelerated and Retarded Progress," Encyclopedia of Educational Research, Third Edition. (Edited by Chester W. Harries). New York: The Macmillan Company, 1960. 4-11.

Shane, Harold G., and James Z. Polychrones, "Elementary Education - Organization and Administration," Encyclopedia of Educational Research, Third Edition. (Edited by Chester W. Harries). New York: The Macmillan Company, 1960. 421-428.

Tyler, Fred T., "Individual and Sex Differences," Encyclopedia of Educational Research, Third Edition. (Edited by Chester W. Harries). New York: The Macmillan Company, 1960. 680-688.

C. JOURNALS AND PUBLICATIONS

Alberta Department of Education, Programme of Studies for the Elementary School. Edmonton, 1936. 320.

Barbe, Walter B., and Tina S. Waterhouse, "An Experimental Program in Reading," Elementary English, 33: 102-104, 1956.

Carbone, Robert F., "A Comparison of Graded and Non-graded Elementary Schools," The Elementary School Journal, 62: 82-88, November, 1961.

Clarke, S.C.T., "The Effect of Grouping on Variability in Achievement at the Grade III Level," The Alberta Journal of Educational Research, 4: 162-171, September, 1958.

Cummins, E.W., "Grouping: Homogeneous and Heterogeneous," Educational Administration and Supervision, 44: 19-26, January, 1958.

Dockrell, W.B., "Special Education for the Gifted," Canadian Education and Research Digest, 2: 37-45, March, 1962.

Dunlop, G.M., Hunka, S. and Zingle, H., "Individual Differences in Alberta Schools," The Alberta Journal of Educational Research, 1: 5-15, December, 1955.

Dunn, Mary, "Should There Be Any Set Type of Elementary School Organization?" Elementary School Journal, 53: 199-206, 1952.

Educational Testing Service, Cooperative Tests of Educational Progress, Technical Report. Los Angeles, Calif., 1957. 320.

Goodlad, John I., "Some Effects of Promotion and Nonpromotion Upon the Social and Emotional Adjustment of Children," Journal of Experimental Education, 22: 301-28, 1954.

Holmes, Darrell, and Lois F. Harvey, "An Evaluation of Two Methods of Grouping," Educational Research Bulletin, 35: 213-22, 1956.

Jenkinson, M.D., "Implications of Psychological Research for Elementary Education," Canadian Education and Research Digest, 2: 195-204, September, 1962.

Jones, Daisy M., "An Experiment in Adaptation to Individual Differences," Journal of Educational Psychology, 39: 257-272, 1948.

Polkinghorne, A.R., "Parents and Teachers Appraise Primary Grade Grouping," The Elementary School Journal, 51: 271-279, January, 1951.

Russell, Donald W., "A Functional Approach to the Study of the Gifted Child," The Elementary School Journal, 57: 45-47, 1956.

Worth, Walter H., "Promotion vs. Nonpromotion: The Earlier Research Evidence," The Alberta Journal of Educational Research, 5: 77-86, June, 1959.

Worth, Walter H., "When is Grade Repetition Most Profitable?" The Alberta Journal of Educational Research, 4: 77-86, December, 1961.

Worth, Walter H., "Proposals for Improved Organization of the Elementary School," Organization - a Means to Improved Instruction. Edmonton, Alta.: The 1962 Alberta Principals' Leadership Course, The Policy Committee, 1962. 41-62.

Wrightstone, J.W., "Class Organization for Instruction," What Research Says to the Teacher, No. 13. Washington, D.C.: Department of Classroom Teachers and American Educational Research Association, National Education Association, May, 1957. 33.

D. UNPUBLISHED MATERIALS

The Continuous Progress Plan, First Draft, 1960. Edmonton:
The Edmonton Public School Board. 58.

Evans, W.H., "Certain Grouping Combinations Used in Split Grade Classes in the Elementary School," (Unpublished Master's Thesis, The University of Alberta, Edmonton, 1962).

Gillespie, E.M., "An Evaluation of the Four Year Program in Division One as Followed by the Calgary Public Schools," (Unpublished Master's Thesis, The University of Alberta, Edmonton, 1960).

Ritchie, R.C., "A Survey of Selected Nongraded Elementary School Programs in Canada and the United States," (Unpublished Master's Thesis, The University of Alberta, Edmonton, 1960).

E. TESTS

Baker, Harry J., Detroit Advanced First-Grade Intelligence Test. Chicago: World Book Company, 1954.

Calgary Public School Board, Calgary Primary Arithmetic Test. (Unpublished).

Educational Testing Service, Cooperative Sequential Tests of Educational Progress. Los Angeles 27, California: Cooperative Test Division, 1957.

Gates, Arthur I., Gates Primary Reading Test, Type PPR. Paragraph Reading. New York: Bureau of Publications, Columbia University, 1958.

Gates, Arthur I., Gates Primary Reading Test, Type PWR. Word Recognition. New York: Bureau of Publications, Columbia University, 1958.

APPENDICES

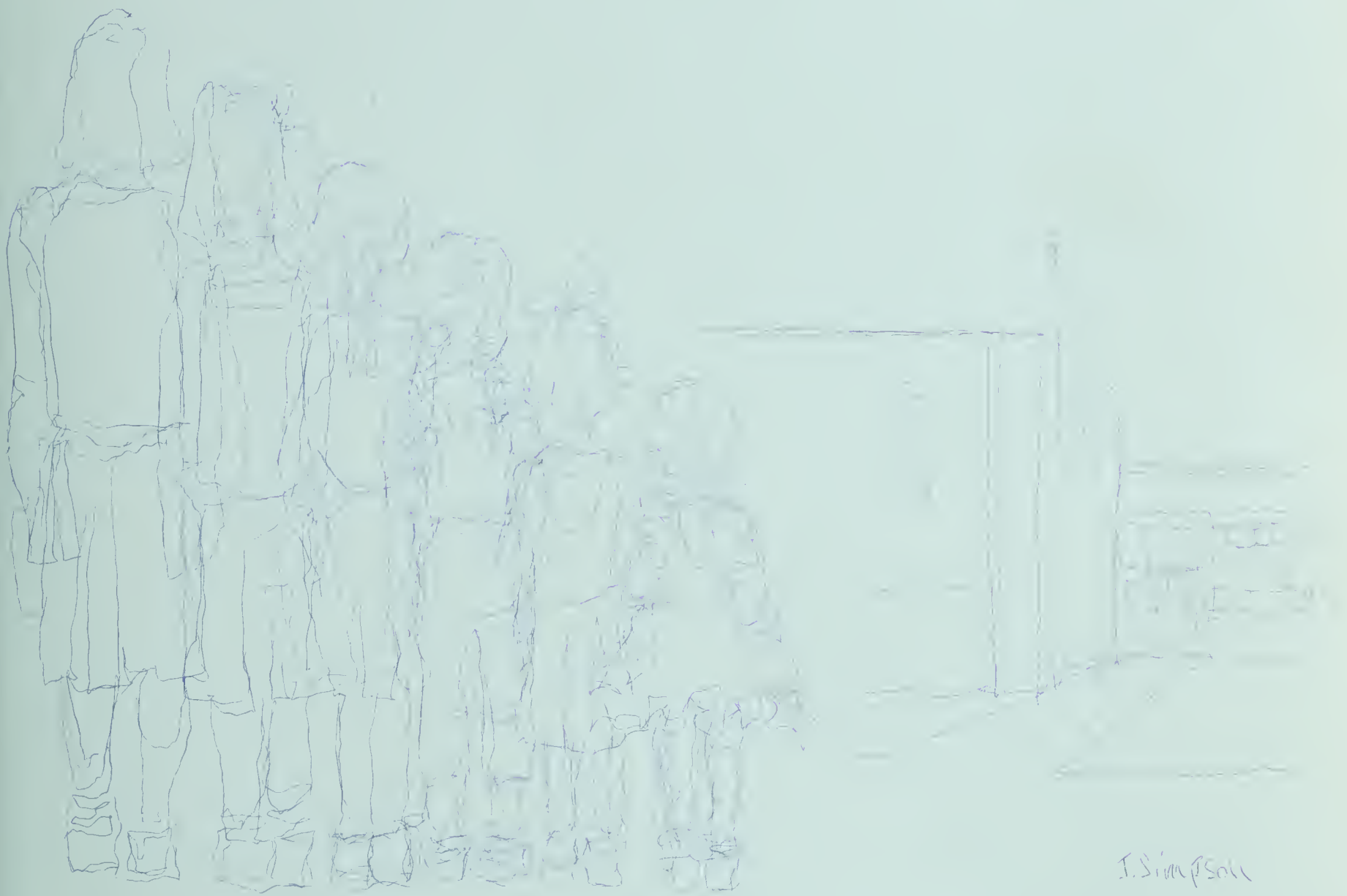
APPENDIX A

TEACHERS' MANUAL

THE EDMONTON CONTINUOUS PROGRESS PLAN (FIRST DRAFT, 1960)

THE EDMONTON CONTINUOUS PROGRESS PLAN

Unmodified system of elementary school organization



J. Simpson

PRINCIPALS' and TEACHERS' MANUAL
FIRST DRAFT • 1960

EDMONTON PUBLIC SCHOOL BOARD

The Edmonton Continuous Progress Plan

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Many educators , deeply concerned about the over-systematized practices which have characterized the rigid application of the graded school concept, have been encouraged by numerous programs being developed throughout the country to improve our system of elementary school organization. Many of them regard these newer types of organization as among the most heartening developments in elementary education in the last fifteen years . As Goodlad puts it

..... ungraded elementary schools are a light in the darkness to those teachers who look upon arbitrary grade standards , annual promotions , and repeated failure regardless of effort, as anti-ethical to a range of pupil expectations , continuous pupil progress , and success geared to realistic tasks. ¹

It should not be overlooked, however , that

..... the nongraded elementary school is no panacea. Such a school makes the conduct of education no easier. But the process of nongrading lays bare long-standing educational problems. There is seen to be a compatibility between the nongraded structure and continuous pupil progress , longitudinal curriculum development, and integrated learning. Having glimpsed the nature of this compatibility, educators must then face up to the arduous process of bringing it to life. ²

1. John I. Goodlad, "Ungrading the Elementary Grades", National Education Association Journal, 44, March, 1955, p. 171
2. J.I. Goodlad and R.H. Anderson, The Nongraded Elementary School, New York; Harcourt, Brace and Company, 1959, p. 216

Reprinted, with permission, from an unpublished Master's thesis , University of Alberta, 1960 entitled "A Survey of Selected Nongraded Elementary School Programs in Canada and United States" by Mr. R. Cameron Ritchie , principal, Fulton Place School.

THE EDMONTON CONTINUOUS PROGRESS PLAN

A Modified Grade System of Elementary School Organization

Edmonton Public School Board

The Problems of a Conventional Grade System

Our grade system, which has been in existence on this continent for slightly more than one hundred years, has evolved largely as a matter of convenience. Under this system, in which the total educational program is divided more or less arbitrarily into yearly segments of work, the progression of pupils from grade to grade has been regarded in theory as a comparatively simple system to supervise and administer.

In practice, however, teachers have long recognized that the rigidity or "lock-step" nature of the conventional grade system has made it extremely difficult for them to provide adequately for the wide range of learning abilities which are present in the average classroom. The system presumes a uniformity in the rate of learning among children which is not supported by facts. Custom has focussed curriculum objectives and content on the needs of the majority or average pupils. As a result, unrealistic demands are often made of the slower pupils and superior pupils are not provided with sufficient challenge.

Many methods have been employed to help compensate for or to correct the inadequacies. Among the most common of these has been the old practice of failing a few of the weaker pupils periodically and allowing some of the brighter pupils to "skip" a grade. The former represents a serious waste through repetition of work covered and the latter ignores the importance of continuity in growth. Both procedures have serious sociological and psychological drawbacks.

It is true in modern schools that teachers do provide for considerable flexibility of instruction within the limits of their individual grades. Through grouping of pupils, special assignments and other methods, instruction is differentiated so that each child is enabled to work at his own rate. The program is enriched for brighter children--slower children in the same class are given work that is within their grasp. As an example, many teachers have the weaker pupils working with reading materials of the grade below while the superior pupils may be working with material at the grade above. Such practices tend to minimize some of the weaknesses of an inflexible type of progression.

Unfortunately, when it comes to making promotions at the end of the school year, the teacher is still confronted with the difficulties imposed by our grade system of indicating the true amount of progress that has been made. No recognition can be made of the differing amounts of growth that have taken place other than by skipping or failing the extreme cases, as has been mentioned. No adequate designation can be made for the pupils who may have achieved mastery of two-thirds of his work. Nor can we give recognition to the amount of growth the bright child has made, or is capable of making, beyond the average achievement for his grade. All are passed without distinction into the next grade.

Many Solutions Have Been Considered

Over the years, individual schools or school systems have experimented with plans to solve the problems referred to above. Some of the plans have subordinated the emphasis on grades or eliminated grades entirely. Many of the plans have involved moving the pupils through contracts, levels, or units of work (as they are variously called) at rates which depended upon the pupil's application and ability. Some of the better known of these plans still remain in operation after many years. Others, because of complexity or limited support from teachers and the public, have not gained wide acceptance.

In recent years, increasing enrolments, longer school attendance and especially the new and urgent demands of our times have resulted in a renewed determination on the part of educators to improve their school organizations. Rural and urban school systems in many parts of Alberta and in practically every province of Canada, as well as the many systems in the United States, have introduced new types of organization or are experimenting with various plans to meet the differing needs of their pupils more adequately than the ordinary grade system permits.

Among the procedures that have been adopted or are being tried in different parts of Canada the following may be noted:

- (a) The work of the elementary grade is divided into levels or units and the pupils progress through them at varying rates according to their ability. There are many variations of this plan. Some start at the Kindergarten, others postpone the start to the first, second or third years. Some extend the plan over all elementary grades, others limit it to varying parts of the elementary grades.
- (b) Division of pupils into three streams in larger schools. This is self-defeating unless different courses are offered for each stream; the teacher attitude is frequently derogatory to the "C" stream.
- (c) Teacher carries the class for a period of three years, grouping pupils according to ability and accomplishment within the class.
- (d) Three different age groups in one class-- pupils about three years with the same teacher.
- (e) Pupils are permitted to proceed at different rates but the work is not divided into units. Brighter pupils able to complete three years' work in two while slower pupils required to take four.
- (f) Brighter pupils are drawn from neighbouring schools and given special program in selected centres.

THE EDMONTON CONTINUOUS PROGRESS PLAN

Original Experimentation

The plan being developed in our elementary schools and which is described in greater detail further along in this manual represents an adaptation of the best features of some of the plans referred to above, along with a number of local modifications which the principals and teachers, who helped to develop it, have considered worth incorporating. It is a plan which we feel will enable us to preserve the many excellent values of our Alberta program and at the same time help us to correct those features of a rigid grade system which are detrimental to educational progress.

The original experiments with the plan were begun in the spring of 1957 at Parkallen School and the first group of faster learners completed their progression through it in the spring of 1960. Interest in the plan was next shown by Delton and Crestwood schools where the new system went into operation in September, 1958. Seven other schools--Rutherford, Inglewood, Lauderdale, King Edward, Parkview, Windsor Park and Capilano adopted and introduced the plan in September, 1959. The following schools studied the plan and introduced it in September, 1960 -- McKernan, Belgravia, Fulton Place, Dovercourt, Alex Taylor, Coronation, Holyrood, Gold Bar, Oliver, Glenora, Donnan and Queen Alexandra.

General Statements

The Edmonton Continuous Progress Plan is primarily an administrative method of classroom organization and promotion to facilitate the smooth and natural progression of pupils through school at varying rates according to their ability. It does not involve any changes in teaching objectives or procedures from those practiced in the average classroom where modern methods are used and differentiation of instruction is attempted.

While it does permit superior pupils to proceed through the elementary school at a slightly faster rate, acceleration is not its main emphasis. It is just as concerned with the progress of the slower pupils. It is a plan from which all pupils can expect to benefit -- the slow and the average, as well as the bright. We believe it to be a better plan than the conventional grade system for giving every pupil, whatever his native intelligence may be, an opportunity to develop to the greatest possible extent the potentialities with which he has been endowed.

The Continuous Progress Plan is not complicated. It is simply a modification of the conventional grade system. The main difference between it and the conventional grade system is in relation to the movement of the slower and brighter pupils. The brighter pupils will move a little faster and the slower pupils will take a little longer to progress through the grades than the average pupils. Because of this a few extra forms have had to be introduced to keep track of their progress. The Average pupils, or between 70% and 80% of the total enrolment in most schools, will proceed much as they do now and teachers will continue to teach them in the regular manner.

The plan involves a little more administrative work and responsibility. Besides the greater care required to screen the pupils in the beginning, several new record forms are needed to keep track of the pupils' progress from unit to unit and through each year of the plan. Most of these new forms have been completed and modifications are being made in current forms such as report cards and cumulative folders to meet the special requirements of the continuous progress plan.

The plan requires closer involvement of the principal and the teachers in the individual progress of each child. Teachers will be forced to know their pupils much more intimately if they are to provide them with the different kinds of programs they require and guide them successfully to determined goals from year to year. But since this has always been one of our major responsibilities, teachers will find that the new organization will facilitate and help them to achieve their purposes more effectively. This close and intimate relation with each pupil that the plan requires is considered to be one of its greatest strengths.

Main Details of the Plan

The following outline indicates briefly the general nature of the Continuous Progress Plan. It has undergone some modifications since it was first introduced in 1957 and it will probably undergo other modifications as teachers work with it and develop improvements.

1. The work of the first five grades is divided into fifteen units or three units per grade. This unit division of the work applies chiefly to the skill subjects of reading, arithmetic and spelling. A curriculum guide which indicates the content and suggested limits of each unit has been prepared and is available to teachers. There are no differences in the way the other subjects are handled.

Grade	I			II			III			IV			V			VI		
Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			

2. In contrast to some systems, the Edmonton Continuous Progress Plan does not go into full operation until the beginning of the second year of school. The first year in school is an observation and screening period. While the first year teachers proceed with their instruction program, exactly as they do now, the pupils are carefully studied to determine their abilities and what rates of progress will be best for them in succeeding years. The teachers' observations and decisions are supported by two intelligence tests given at the first of the year and several standardized tests in Arithmetic and Reading which are given in May. In the final screening or classification of pupils for the next year, age, health and emotional maturity are also considered.

On the basis of this careful screening:

The pupils are divided into three groups or classifications --
A faster moving group, an average group, and a slower moving group
Each group will travel at a pace to challenge, but not to frustrate.

3. In any school year it is likely that:

The superior group will complete 4 units
(10 - 15 per cent of pupils) *

I		II			III	
2	3	4	5	6	7	8

The average group will complete 3 units
(70 - 80 per cent of pupils) *

I		II			III	
2	3	4	5	6	7	8

The slower group will complete 2+ units
(10 - 15 per cent of pupils) *

I			II	
1	2	3	4	5

Thus, the superior pupils should complete the first five years' work in four years without "skipping". The average group will take the regular five years. The slower pupils will take at least a year longer, but they will not have to "fail" or "repeat" a year, except in extreme cases.

4. *N.B. The percentages of pupils indicated in each group above should be regarded as tentative objectives for the system as a whole and not necessarily as goals for each school. It is expected that the actual percentages in each group will vary from school to school. Some schools will have more superior pupils, others will have a relatively larger group of slow learners. It might be noted that the percentage trend among slow learners in the whole system is running under 10% at present which we feel is desirable. One of the objectives of the plan is to prevent the amount of retardation from becoming any greater than it is and to reduce it wherever possible.

5. The chart below illustrates how the plan would operate over the entire elementary section of the system.

THE CONTINUOUS PROGRESS SYSTEM

	Observation & Screening Year			Modified Grade Plan starts in Second Year and continues until the end of the Fifth Year except for slower pupils .												Regular Program Again					
	Grade I			Grade II			Grade III			Grade IV			Grade V			Grade VI					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15						
Superior Achievers	Plus Enrich-ment			←	4 Units	→	←	4 Units	→	←	4 Units	→	Plus Enrich-ment								
	First Yr.			Second Yr.			Third Yr.			Fourth Yr.			Fifth Yr.								
Average Achievers				Regular progression from year to year as at present																	
	First Yr.			Second Yr.			Third Yr.			Fourth Yr.			Fifth Yr.			Sixth Yr.					
Slower Learners				Objective is about 2 1/2 units per year but subject to variation																	
	First Year			Second Year			Third Year			Fourth Year			Fifth Year			Sixth Year			Seventh Year		

6. The flexibility of the plan does permit the shifting of a few pupils from one room to another, or to different groups up or down, when necessary. However, if the classifying has been done carefully in the beginning, it will be found that very few changes will have to be made later. The usual experience will be that after the various groups have been assigned to a teacher, they will remain with her for the full year. Next year they will move to another teacher and begin working where they left off in June.
7. Pupils who are older than the average when they are accepted into school can gain a year under this type of organization if they have better than average ability. By placing them with the superior children they are forced to work more nearly to capacity during the entire period, which seems preferable to travelling with the average and then at some point being asked to skip a grade or to complete the work of two grades in one year.

8. The method of organizing classes under the unit plan will present a few special problems to principals at first but once they have become more familiar with the principles involved most of the difficulties will disappear. The following examples illustrate how the pupils in three second year classes of a medium sized school might be distributed on the basis of their achievement in the preceeding year. In the examples, tests and observation made by the First Year teachers indicate that the ninety-two pupils in their charge can be classified as: Superior - 10, Average - 72, and Slower - 10. The seventy-two average pupils are further classified into a High Average group of thirty-five and a Low Average group of thirty-seven.

The pupils might then be allocated in this manner:

Class No. 1	Class No. 2	Class No. 3
Superior -- 10 (Goal - 4 units)	High Average -- 15 (Goal - 3 units)	High Average -- 20 (Goal - 3 units)
Low Average -- 20 (Goal - 3 units)	Low Average -- 17 (Goal - 3 units)	Slower -- 10 (Goal - 2+ units)

As may be seen, the teacher will have several groups in her room just as she has now under the grade system. In larger schools the number of groups can often be reduced but this is not always possible in smaller schools.

Grouping the pupils as shown leaves some "sparkle" in each room, avoids the dangers of complete segregation, and forces teachers to differentiate instruction. Teachers who have worked with classes arranged as above have been quite enthusiastic and pleased with the results they were able to achieve.

9. When the Continuous Progress Plan is introduced into a school only the first year (Grade 1) pupils and their teachers are involved at first. The pupils in Grade 1 have to be tested and classified the previous spring before the plan goes into actual operation the following September when they become Second Year (Grade 2) pupils. The plan progresses from there on year by year until it is in full operation.

Advantages and Possible Dangers

While there are still many problems to be solved, the principals and teachers in the schools that have tried out the plan for several years feel that it is a step in the right direction. It will not solve all the difficulties which attend the education of pupils with widely varying interests and abilities any more than the regular grade system can. However, they feel that it has many advantages over the conventional grade system. It has not been any more complicated to handle than any good modern program where differentiated instruction is attempted. In larger schools it is often easier to operate. In every district where it has been introduced a large majority of the parents have given the plan enthusiastic support.

The Dangers

From the evaluation we have done to date these are the possible weaknesses which could develop if precautions are not taken to guard against them:

1. Teachers can become so preoccupied with the mechanics of operating the plan that they might lose sight of many other and equally important values in the Alberta program.
2. Teachers can easily fall into the error of assuming that they have met the needs of their brighter pupils by helping them gain a year in school. Actually teachers must be especially resourceful with these pupils to insure that their program is fully enriched.

The Benefits

Here are some of the main benefits:

1. The plan helps to reduce the wastage found in conventional grade systems where slower pupils are required to repeat work they have already covered.
2. The plan also helps to prevent wastage at the other end of the scale by permitting able students to proceed more rapidly instead of being held back to conform with the inflexibility of the rigid grade system.
3. The plan permits the teacher to set realistic goals for the pupils which are within their ability to achieve.
4. The plan necessitates the early identification of each pupil's abilities and interests so that appropriate programs can be provided.
5. The plan stimulates the school to provide an enriched program for its brighter students.
6. The plan enables the school to provide a more positive program for its slower pupils which will enable them to retain their self-respect and confidence.
7. The careful grouping required of the plan enables teachers to use their time to better advantage, plan more definitely, and hence get better results.

RECOMMENDED PROCEDURES FOR INTRODUCING AND OPERATING THE PLAN

Good Public Understanding and Teacher Support Are Essential

It is natural that the prospect of any change from long established ways of thinking and doing things will meet with some resistance or anxiety at first. For this reason it is essential that all aspects of the plan be discussed very thoroughly and frankly with the teachers and the parents in each school before it is introduced. Teachers and parents should be encouraged to question every detail of the plan and express any reservations they might have. Thorough discussion and full explanations beforehand will go a long way toward eliminating the possibility of misunderstandings developing later. This careful advance study of the plan has been responsible for much of the success and support the plan has enjoyed in those schools where it has been introduced. Here are the steps that other schools have followed:

1. Discuss the plan during a regular or special staff meeting at which representatives from the central office or principals or teachers from participating schools could be present.
2. Have the plan explained to the parents at a special meeting (under Home and School auspices where such exist). Speakers from the central office or principals operating under the plan will be glad to assist.
3. Follow-up with an explanatory letter along with the pupil's report card when they are issued in the fall. Copies of such a letter are available from the Department of Elementary Education on request.
4. Review the plan at Home and School meetings at intervals after the plan has gone into operation. Principals will find that such meetings, as well as frequent teacher meetings, will be needed for several years if the modified procedures are to become firmly and successfully established.
5. Parent Conferences -- A majority of the teachers and principals who have been working with the plan find that conferences with the parents particularly in respect to the placement of their children has led to better understanding and cooperation. These conferences help to clear up points such as the following:
 - (a) That it might be undesirable to place a bright child in the Superior group if there is an indication of social or emotional immaturity or if a health problem exists.
 - (b) That a child's placement in any group should not involve extra pressures either at home or in school.
 - (c) That it should not be necessary to curtail normal activities of the child such as music, dancing, skating, etc.

- (d) That the parent should be prepared and willing to withdraw the child from any group and support the school when it recommends that such action seems desirable.

The Initial Classifying Is Done By The First Year (Grade 1) Teachers

It is the function of the first year teachers, in consultation with their principals, to observe their pupils carefully during the year with a view to determining the varying rates at which they can be expected to proceed most successfully in succeeding years. To support their judgment, based on experience, and to assist them in making their decisions, a series of more objective criteria are provided.

I The first year teachers are asked to classify their pupils as follows:

1. Superior Pupils (S)

Children capable of proceeding through the elementary grades without strain at a little faster pace than the average pupils.

2. Slower Learners (R)

Children who are likely to experience difficulty in maintaining the pace of the average pupils and who would normally fail or become frustrated somewhere along the way.

3. Average Pupils

It is requested that the pupils in this group be further classified and ranked into High Average (HA) and Low Average (LA) groups. The ranking and classifying of this average group of pupils in this manner will be of considerable assistance to the Principal in organizing and balancing of classes for the next year.

II To support their personal observations and judgments, first year teachers will look for:

1. Evidence of mental capacity.
2. Evidence of achievement.
3. Evidence of emotional and social adjustment.
4. Evidence of good health.

A. Mental Capacity

The Detroit Advanced First-Grade Intelligence Test should be administered in March so that teachers may select the more rapid learners that are to be carried beyond the usual goals for average pupils in grade one.

Reference to the Detroit Beginning Test and California Pre-Primary Test of Mental Ability administered in September will be helpful in making final decisions about the intellectual capacity of children.

Younger children should have a relatively higher rating in intelligence to be eligible for the group of Superior Achievers.

Since maturity is an important factor, the following scale indicates the intelligence test score necessary at specific ages. As the chronological age increases the required intelligence test score decreases so that older children may be eligible for acceleration with lower scores than those required for young children.

The scale below indicates the I.Q. scores for certain age groups that are necessary before a child should be considered eligible for the Superior Group.

CHRONOLOGICAL AGES AND
DETROIT ADVANCED INTELLIGENCE TEST SCORES

C.A.	I.Q.	C.A.	I.Q.	C.A.	I.Q.
6.2	130+	6.8	118	7.2	113
6.3	126+	6.9	117	7.3	112
6.4	124+	6.10	117	7.4	111
6.5	121+	6.11	116	7.5	110
6.6	119+	7	115	7.6	110
6.7	118	7.1	114		

B. Achievement Testing

In addition to intelligence test scores we must consider the scores on standardized tests in reading and arithmetic and possibly in spelling.

Reading

Standardized reading tests in Word Recognition and Paragraph Reading are administered to all grade one pupils in June.

Young children (C.A. 6.5 or less) should receive an 'H' standing on both tests to be considered eligible for the "Rapid Learner" group. Others should have an 'A' standing or better.

Arithmetic

Similarly, young children should have an 'H' standing on a standardized arithmetic test, but older children may be considered for acceleration with an 'A' standing or better.

Spelling

Although it is unnecessary to base selection of groups on ability in spelling, the teacher may use the first few words from any one of the Edmonton Spelling Ability Tests. Five words correctly spelled would indicate good ability. The four spelling tests on the California Battery of Achievement Tests for Grades 1, 2, 3, L4 may be found in the Manual of Directions. Any one of the four tests may be used. A sample of these tests is included in this booklet.

The letter-gradings assigned to specific scores may fluctuate from year to year. The letter gradings assigned in June 1960 are as follows:

	Gates Primary Paragraph Reading	Gates Primary Word Recognition	Calgary Arithmetic
H	23	30+	79+
A	19 - 22	27 - 29	70 - 78
B	11 - 18	22 - 26	55 - 69
C	10 - 17	18 - 21	40 - 54
D	9 -	17 -	39 -

California Achievement Tests Complete Battery - Spelling

Form	AA	BB	CC	DD	Suggested Grade Score
	do	and	do	and	1.2
	is	on	is	on	1.6
	run	now	run	now	1.10
	good	top	good	top	2.0
	my	into	my	into	2.2
	live	him	wife	rain	2.4
	late	tell	play	night	2.9

C. Emotional and Social Adjustment

Teachers and principals are requested to observe first year children carefully for indications of maturity which would make it more likely that a child would succeed in the assigned group.

Signs of Maturity:

1. Sensible attitude towards authority.
2. Ability to reason.
3. Curiosity and inquisitiveness without undue aggressiveness.
4. Contributes to group activity in a socially acceptable manner.
5. Ability to work independently and to concentrate attention.
6. Assumes responsibility for personal behavior.
7. Enjoys satisfying relations with other children.
8. Absence of tension or nervousness.
9. Freedom from emotional outbursts.
10. Willingness to share and take turns.

D. Health

Children should also be observed for any evidence of persistent poor health which might handicap them. Consultations with the school nurse or reference to the medical record will help here.

E. Teacher's Judgment

In the final analysis, the teacher's own experience and judgment will be a very important factor in determining which group assignment is best for each child. No screening procedure that affects human beings can ever be completely objective. The scores on the mental and achievement tests will be very helpful but even they are subject to variation. The teacher will have to weigh each factor carefully and then consider them as a whole.

Most difficulty will be encountered in selecting candidates for the accelerated group. The temptation to include bright or nice little children, who will find the work of keeping up too much of a strain later on, must be resisted. It is equally undesirable to set up standards that are so restrictive that they exclude capable children from the benefits of the more challenging program. The first year teacher thus has the difficult task of maintaining a nice balance between the two extremes.

III After the pupils are classified, first year teachers are requested to place the relevant information on the record form provided for the purpose. Principals will use the information in organizing classes for the following year. A copy of this form (yellow sheet), partly completed to show the correct procedure, is reproduced below:

Form C

FIRST YEAR CONTINUOUS PROGRESS CLASSIFICATION RECORD

Edmonton Public School Board

School Rosewood Teacher R J Wilson Room 2 Sch. Yr. 1959-60 Date June

This form is a record of the testing and observations made by First Year teachers in consultation with their principal to determine the relative rates at which First Year Pupils can be expected to progress in succeeding years. While the assessments made herein can be modified later on, this original evaluation is extremely important. It is the basis for all future guidance. Your principal will use it to assist him in organizing classes for next September.

Classification Legend: S - superior or faster learners (4 units); HA - high average (3 units); LA - low average (3 units); and R - slower learners (2+ units)

N.B. All superior, HA, and LA pupils begin the 4th unit in their Second Year.

Pupils' Names Arrange alphabetically in classification groups	C. A. to nearest month Sept 1	1. MENTAL ABILITY			2. Achievement (Grade Norms)				3.	4.	RECOMMENDED CLASSIFICATION
		I.Q. Dev. T.	I.Q. Int. Avg.	GROUP	Reading		ARITH.	Emot. Adjust. Good or Poor	HEALTH G or P	CLASSI- FICATION	
					G. Voc.	G. PHK.					
Jones, Mary	6-7	107	112	H.A.	2.4	2.3	65		G	G	H.A.
Jordon, Gary	7-5	113	121	S	3.2	3.2	75		G	G	S
Gray, John	8-1	91	101	L.A.	2.3	2.3	58		G	G	L.A.
Anderson, Lois	7-6	104	84	R	1.8	1.5	36		P	G	R

The examples above are illustrative only. They would not necessarily be all in the same room as shown.

RECORD KEEPING IN THE SECOND TO FIFTH YEARS

Teachers will continue to use the current record forms such as registers, plan books, report cards, promotion sheets and cumulative folders. Eventually most of them will undergo a few minor changes to accommodate the modifications being made in our school organization but their functions will remain essentially the same.

1. Recording Progress on CP 2 (Green Sheet)

The only extra form required in Grades two to five inclusive is a form developed to help the teacher keep track of the unit progress of her pupils during the year. It is recommended that teachers use it periodically to check and record each pupil's progress. It should also be available for reference occasionally by the principal who will also need it at the end of the year to help him in organizing classes.

A copy of this form is reproduced below to indicate how it should be marked.

to Fifth Years

Form CP 2

EDMONTON PUBLIC SCHOOL BOARD

Teachers' Class Record of Continuous Progress Section of the Program

Rosemount Teacher C. R. Taylor Room 12 Year 19 61

This is primarily an administrative form for the purpose of (1) helping the teacher record check periodically the unit progress of the pupils toward determined goals and (2) providing information for the principal at the end of the year which will assist him in organizing classes in September. Other and more detailed information about each child will be recorded in registers, Plan Books, Report Cards and in the Cumulative Record Folders in the regular way.

Classification Legend: S - superior or faster learners (4 units); HA - high average (3 units); LA - low average (3 units); and R - slower learners (2+ units).

Names of Pupils (List and arrange groups alphabetically)	Classification	Starting Yr. in Sch.	Unit Comp.	Unit Goal	Unit Progress (Enter units and check as completed)					Special Comments	Rec'd Placement Sept.	
					1	2	3	4	5		Units	Unit
					✓	✓	✓	✓	✓	Beginning fourth year in school on Sept 5, 1961	LA	11
John	LA	1957	9	12	✓	✓	✓			Retained in Low Average	LA	11
Jean	R	1957	10	11	✓					Lost 43 days through illness	R	10
Mary	S	1957	11	15		✓	✓	✓	✓	Maintaining Superior Standing	S	12

N.B. While every effort has been made to keep the number of new record forms down to a minimum it must be stressed that those which have been introduced along with those already in use are extremely important. Proper use and careful attention to all pupil record forms are essential if the Continuous Progress Plan is to operate successfully.

2. Reporting Progress Under the Continuous Progress Plan

- (a) Since no departure from the basic philosophy of the Alberta program is involved in the Continuous Progress Plan, no major changes are contemplated in the form of our current report cards other than the provision of space to record the unit progress of each pupil in reading, spelling and arithmetic.
- (b) Until a new printing of report cards is made, teachers will be provided with a unit record form entitled "Supplementary Record of Progress" which may be stapled to the present forms. Various methods of filling them in have been used with success in different schools. The progress of a superior child halfway through the second year is illustrated below. The bar or line graphs would be shown touching the dotted line representing the completion of the seventh unit in the final report to the parents.

Supplementary Record Of Progress Of Pupils Participating in the Modified Program

The work of the first five grades in reading, spelling and arithmetic is divided into fifteen units. Work in other subjects is carried on in the regular way.

This modification in our grade system is designed to permit children to progress at a pace that is best suited to their needs and abilities. The majority of them will cover three units per year. A few will travel at a faster rate but without skipping any of the work. Immature or slower-learning pupils will proceed more slowly to avoid becoming confused.

Until a new report form has been prepared, your child's progress in the three subjects noted will be indicated on both the regular form and this supplementary record. The progress of slower-learning children may be recorded only on this form.

The red lines below indicate the approximate progress made by your child to date.

Grade - -	I			II			III			IV			V		
Unit - - -	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Reading - -	<div></div>			<div></div>			<div></div>			<div></div>			<div></div>		
Spelling - -	<div></div>			<div></div>			<div></div>			<div></div>			<div></div>		
Arithmetic -	<div></div>			<div></div>			<div></div>			<div></div>			<div></div>		

It is interesting to note that parents find this supplementary statement of considerable help to them in understanding their children's progress.

- (c) The inclusion of this supplementary report form has re-focussed attention on the old problem of what is the best way of reporting the progress of the slower pupils. Shall we indicate growth in terms of their own ability to encourage them or shall we grade them in comparison to other pupils to avoid giving them a false sense of achievement? Suggestions for handling this problem are contained in the current Report Card Manual. Some teachers working under the new plan show progress in Reading, Spelling and Arithmetic on the Supplementary Record of Progress only. Others use both forms and show progress both ways. Further study is needed to determine which way is best.

SUPPLEMENTARY RECOMMENDATIONS FOR REPORTING PUPIL PROGRESS

Teachers who have been working under the Continuous Progress Plan for some time have found that the changes in organization have necessitated making other changes in the methods of reporting pupil progress in addition to those referred to above.

1. The parents should be kept fully informed of the plans being recommended for their children. A good deal of this should be done at the end of the first or observation year and certainly not later than early in the second year. First-year teachers can provide much of the necessary information on the Report Cards in the Final Report. (The present forms will have to be used until revised forms are available.) Comments such as the following have proven satisfactory in the final report for the First Year:

1. For Slower Pupils

"_____ has completed two units of the first year program. It is planned to have _____ start the third unit next September and continue at a pace which is most suitable for _____".

2. For Average Pupils

"_____ has satisfactorily completed the regular program for the first year. Present plans are for _____ to proceed with the regular second year program next year".

3. For Superior Pupils

"_____ has completed the first year program very satisfactorily. _____ is being recommended for placement in our accelerated program for next year.

2. Similar remarks can be made in the Final Reports for succeeding years with, of course, such modifications as are appropriate.

Most principals and teachers find that it is very helpful to supplement such statements as those above with brief explanatory notes or personal conferences, especially in the case of the slower and the superior pupils. These extra efforts to keep the parents informed invariably result in better understanding and support.

SUGGESTIONS TO PRINCIPALS FOR ORGANIZING CLASSES

As has been mentioned, the method of organizing classes will present a few special problems to principals at first, especially as the groups of pupils progress further and further through the grades. However, as principals become more experienced and familiar with the principles involved, most of the difficulties will disappear. The following suggestions and illustrations, in addition to the explanations made elsewhere throughout this manual, should prove helpful.

1. In organizing classes, principals have to keep in mind the desirability of distributing the pupils as far as possible so that each room has groups in it which are appreciably different in ability. In larger schools the number of groups can often be reduced to two but in smaller schools this is not usually possible. Three groups in any one room should be the maximum. The recommended distribution of pupils is as follows: Superior pupils and Low Average, High Average pupils and Slow Learners, and such variations from these groupings for the balance (if there is a balance) as circumstances require.
2. Ordinarily the placement of the Superior and Slow Learning pupils does not present any problems but the distribution of the large middle group to balance class loads does create a difficulty. The division of these pupils by the teachers into a High Average group and a Low Average group is a help but a new difficulty arises when chance variations in the number of pupils in these middle groups makes it impossible to balance class loads without ignoring the classifications.

Several principals have met this problem in this way. They regard the middle group as a common pool from which pupils may be drawn to balance class loads. They are all going to cover approximately the same amount of work anyway. The principal continues to have the teachers classify the pupils as High Average or Low Average but, in addition, asks the teachers to rank them in order of ability. With this additional information the principal can then draw from the top or bottom of the two main middle groups when he is faced with a situation where he needs a few more "Low Average" or "High Average" pupils to balance a given class load.

3. In supervising the unit progress of pupils, principals should discourage "fractional" progress which might increase the teacher's work and his organization problems. As an example, consider the pupil who has only completed one unit of work. To recognize all such small credits would make the teaching and organizing problems unnecessarily complicated. In such cases it is recommended that the pupil be required to repeat the unit as part of his next year's assignment.
4. After the teachers have completed the annual classification of their pupils on the new forms CP 1 or CP 2 each spring, it remains for the principal to arrange the information received in some convenient manner in preparation for organizing next year's classes. Many principals will probably prefer to experiment with different ways of arranging the data until they have developed an arrangement that suits their purposes best. The method of organizing classes shown on the next two pages has been found to work satisfactorily for most types of schools. The following tables indicate classroom distributions for a small and a medium-sized school.

The organization chart below has been completed to indicate how classes might be organized and pupils distributed in a small school.

PRINCIPAL'S CLASS ORGANIZATION SHEET

School _____ Date _____

Totals by Classification as of next September

Group	U N I T S																		Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
S				6				8				6				4			24
H.A.				21			22			26			16			14			99
<i>Extra space for making adjustments between H.A. and L.A. pupils to balance class loads</i>																			
L.A.				21			21			14			18			16			90
R			5			6		4			3		3						21
Unclassified	43																		43
Totals	43		5	48		6	43	12		40	3	6	37			34			277

Proposed Placement of Pupils for September

Classifications: (1) S-Superior (2) H.A. (3) L.A. (4) R-Slow

Room	U N I T S																		Totals
	I			II			III			IV			V			VI			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	32	mature beginners																	32
3	(11)			21 HH															32
2			5 R	6 21 L.H	5														32
5							21 L.H.	8 S											29
9						6 R.	22 HH												28
4							4 R			26 HH									30
6	Total Enrolment					277				14 L.A.	3 R.	6 S	8 HH						31
7	No. of Teachers					9							8 HH. 14 L.H			4 S			30
8	Avg. Enrolment					31							3 R			14 HH. 16 L.H			33
Unit Totals	43		5	48		6	43	12		40	3	6	27			34			277

PRINCIPAL'S CLASS ORGANIZATION SHEET

School _____

Date _____

Totals by Classification as of Next September

Group	U N I T S																		Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
S				12				23	<i>Possibility that this school was over-optimistic on selection of superior pupils for first year of plan.</i>										35
MIDDLE GROUP	H.A.			35			24												59
	<i>Extra space for making adjustments between H.A. and L.A. pupils to balance class loads</i>																		
L.A.				27			33												71
R			9			4													13
Unclassified	94									79			66			46			285
Totals	94		9	85		4	57	23		79			66			46			463

Proposed Placement of Pupils for September

Middle Group

Classifications: (1) S-Superior (2) H.A. (3) L.A. (4) R-Slow

Room	I			II			III			IV			V			VI			Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
9	32																		32
13	30																		30
14	32																		32
7				12 HA 21 LA															33
8				17 LA 12 S															29
10			9 R	23 HA															32
6					4 R	24 HA													28
11							15 LA	12 S											27
12							18 LA	11 S											29
2										32									32
PORTABLE										32									32
1										15			18						33
4	Total Enrolment					463							31						31
3	No. of Teachers					15							17			15			32
5	Avg. Enrolment					31										31			31
Unit Totals	94		9	85		4	57	23		79			66			46			463

II. CURRICULUM SUGGESTIONS AND UNIT DIVISIONS

The following section of this manual has been developed and compiled under the direction of Miss A. Carmichael, Supervisor of Division I, with assistance from many of the primary teachers who have been working with the Continuous Progress Plan.

It contains numerous suggestions to teachers who will be working with the slow-learning pupils as well as suggestions for those who will be instructing pupils of superior ability. The list of suggestions, however, must not be regarded as complete. It is expected that resourceful teachers will supplement them with many other ideas and procedures which they have found to be effective so that, through their collective efforts, the program may be continually improved.

This section of the manual also includes a suggested "unit division" of the program in reading, arithmetic and spelling for the first three grades. Teachers must resist the tendency to regard these units as fixed quantities of content that have to be "covered" in some arbitrary or mechanical manner according to some fixed time schedule. The time limits for each unit are only suggestive. The work in each subject has been divided into units only to serve as a general guide and teachers are expected to vary or modify their treatment of each unit as they would in any good modern program to meet the particular needs of their pupils.

Teachers who may experience some difficulty in interpreting or implementing the program are urged to contact the Department of Elementary Education at any time. We would also like to hear from teachers who have suggestions for improving the usefulness of the following pages or who have worked out new procedures that they have found to be effective.

READING SKILLS - DIVISION ONE

The skills listed below are developed in all authorized series of readers. They are practised in the workbooks and tested by the publisher's test for New Curriculum, Ginn and McKee readers.

Grade One

1. Left to right eye movement.
2. Recognizing main idea.
3. Comprehending meaning.
4. Making inferences.
5. Anticipating outcomes.
6. Observing sequence of events.
7. Familiarity with parts of a book.
8. Using table of contents.
9. Reacting to sensory images.
10. Associate titles with stories.
11. Read orally with correct phrasing.
12. Project mood or tone of author.

Grade Two

- Extend skills 1 to 12.
13. Increased eye span.
 14. Perceiving relationships.
 15. Recognizing plot structure.
 16. Read supplementary material.
 17. Respond to humour and fantasy.
 18. Recognize emotional reactions and motives of characters.
 19. Recognize author's purpose.
 20. Audience type reading - reasonable speed, conversational tone, proper breathing and posture.
Read in thought units.

Grade Three

21. Recognize phrases of time and place.
22. Classify stories read.
23. Evaluate character traits.
24. Read to stress important words.
25. Select important and unimportant parts in a paragraph.
Choral reading and poetry.

VOCABULARY DEVELOPMENT - The skills taught in each grade are reviewed and fortified in succeeding grades.

Grade One

1. Understand meanings of all words used in reading material appropriate for the reading level.
2. Recognize various meanings of certain words.
3. Recognize language signs in reading material.
4. Recognize words opposite in meaning.
5. Classify words.
6. Select preferred meanings.
7. Begin alphabetical order.
8. Recognition of variants - s - ed - ing.

Grade Two

9. Interpret figurative language.
10. Recognize familiar synonyms and antonyms.
11. Auditory recognition of syllables.
12. Variants - er, -est, -ly, -ier, -ily, -iest.

Grade Three

13. Begin dictionary skills. Alphabetical order of words to second letter. Use of guide words. Identify root words.
14. Prefixes and suffixes that affect meaning - use of words - less, -ful, -en, -ness, -ly, -er, -dis, -un.
15. Rules for syllabication.
16. Accented syllables.

WORD RECOGNITION

Accurate recognition of words in the vocabulary of each reader used.

Grade One

1. Recognize words from general shape.
2. Recognize familiar parts in new words.
3. Use of picture and context clues.
4. Hearing and seeing endings, rhymes, initial, medial and final consonants.
5. Simple consonant blends and digraphs - br, gr, dr, bl, st, sh, ch, th, wh.
6. Auditory and visual recognition of vowels.

Grade Two

7. Recognition of minute details.
8. Recognition of familiar phonograms.
9. Recognition of familiar contractions.
10. Long and short vowel sounds.
11. Vowel blends and digraphs.
12. Extend consonant blends.

Grade Three

13. Effect of silent e, k, g, p.
14. Extend phonograms.
15. Hard and soft sounds of c and g.
16. Difficult blends.
17. Auditory discrimination of 'head, seven' - similar vowel sounds.
18. Recognize different sounds for same blends - ou, ea, ow.

RATE OF SILENT READING

Grade One

Silent and Oral - 45 w.p.m.

Grade Two

Silent and Oral - 80 w.p.m.

Grade Three

Silent - 125 w.p.m. Oral - 110 w.p.m.

SUGGESTIONS ABOUT READING SERIES

Grade One

1. In grade one any one of the three authorized series may be used.
2. All children in a grade-one classroom should continue in the same basic series until the Primer level is completed. This facilitates regrouping of pupils.

Grades Two and Three

1. Low-average and low achievers should continue in the same series that they used in grade one for basic instruction.
2. High-average and superior achievers can make a transition without frustration.

TESTING AND EVALUATION IN THE READING PROGRAM

Achievement Testing Grades 1 - 3

The achievement tests for the three basic series of readers are related directly to the material and to the abilities developed in the various books, manuals and workbooks. These tests are available on requisition.

They are not attempts to test reading ability in general and they are not planned as a complete evaluation of growth through reading.

For guidance in the use of test results read the "Philosophy" and "The Purpose" of the achievement tests as outlined in the "Manual of Directions" for the various Ginn tests.

Use of Subtest Scores

"The Use of Test Results" is outlined in the same Manual of Directions. There are specific directions for developing the vocabulary and comprehension skills with children who show areas of weakness. It is advisable to go over the difficult exercises with individual children so that you may discover the type of error and apply appropriate remedial procedures.

Evaluation of Growth

The achievement test scores should not be the only criterion for evaluating a child's progress in reading. Along with test scores the teacher should use records of books read, the child's day-by-day responses to reading instruction and his statements of reading interests.

The following check list may prove helpful in evaluating the child's growth after he has completed a reader.

For additional items refer to the Ginn manuals and the Guidebooks for the "Alice and Jerry Basic Reading Series".

Diagnosis of Pupil's Growth in Reading

Enjoyment

1. Does he anticipate reading periods with pleasure?
2. Does he listen attentively and with comprehension?
3. Is he able to read longer sections of the text with interest and comprehension?
4. Does he do independent thinking about what is read?

Rate

5. Is he able to read silently with adequate comprehension at an approximate rate of --

Grade 3 (Superior)	138 words per minute
(Average)	126 words per minute
(Immature)	120 words per minute

Books

6. Does he use books frequently during free time?
7. Is he interested in reading a variety of books?
8. Does he take books home to read?
9. Does he offer spontaneous comments about books read?
10. Does he borrow books from the library?

Comprehension

11. Can he remember details when reading?
12. Can he remember sequence of **events**?
13. Is he able to get the main idea from a passage?
14. Can he draw conclusions from reading?
15. Is he able to predict outcomes?
16. Does he use context, structural and phonetic clues while reading?
17. Are words and expressions from reading becoming part of his speaking and writing vocabulary?
18. Does he read orally with fluency and expression?
19. Does he read before his classmates with increased assurance?
20. Is he able to interpret the mood and characters as he reads?

* See also Ginn Manuals for Goals of Achievement -
On Cherry Street, pp. 12 & 68
Around the Corner, pp. 44 & 45

FREE READERS FOR EDMONTON PUBLIC SCHOOLS

Division One

Curriculum Foundations

Ginn Basic Readers

Reading for Meaning

READINESS

Before We Read
We Read More Pictures

Fun with Tom & Betty
Games to Play

Getting Ready

Teacher's Edition
Pupil's Edition 65¢

Readiness Manual
Pupil's Edition

Teacher's Edition
Practice for Tip, Tip
& Mitten 65¢
Practice for Getting
Ready 80¢

PRE-PRIMERS (New)

We Look and See
We Work and Play
We Come and Go
Enrich - Guess Who
Guidebook for Pre-Pr.
Think & Do 55¢

My Little Red, Green
and Blue Story Book
Enrich - Come With Us
Manual - Pre-Pr. Program
Do & Learn for Pre-Prs .70¢

Tip
Tip and Mitten
The Big Show
Teacher's Edition for each
Practice for the
Pre-Primer 65¢

Expendable tests for each series.

PRIMERS (New)

Fun with Dick and Jane
Manual - Teacher's
Guidebook
Think and Do 55¢

Little White House
Under the Apple Tree (Enr.)
Manual
Do and Learn 70¢

With Jack and Janet
Manual
Teacher's Edition of
Practice for ... 75¢
Eight platform readers
(Not supplied) (\$2.75)

Expendable tests for each series.

FIRST READERS (New)

Our New Friends
Enrich - We Three
Teacher's Guidebook
Think & Do for Our
New Friends 55¢

On Cherry Street
Enrich - Open the Gate
Manual
Do and Learn for
On Cherry Street 70¢

Up and Away
Manual
Teacher's Edition of
Practice for75¢
Enrich - Tiny Tousey's
Birthday \$1.55
(not supplied)

Non-expendable tests and answer blanks.

Expendable tests.

FREE READERS (Continued)

Curriculum Foundations

Ginn Basic Readers

Reading for Meaning

SECOND READERS (New)

Friends and Neighbors
More Friends & Neighbors
Enrich - What Next
Teacher's Guidebook
Think and Do 55¢

We Are Neighbors
Around the Corner
Manuals for each
Ranches & Rainbows
Do and Learn 70¢

Come Along
On We Go
Manuals for each
Teacher's Edition of
Practice for ... 75¢

Non-expendable tests & blanks for each level .

Expendable tests .

THIRD READERS (New)

Streets and Roads
More Streets and Roads
Transition - Just Imagine
Independence - Tall Tales
Teacher's Guidebook
Think and Do 55¢

Finding New Neighbors
Friends Far and Near
Enrich - Fun and Fancy
Teacher's Edition
Do and Learn 70¢

Looking Ahead
Climbing Higher
Manuals for each
Teacher's Edition of
Practice for ... 75¢

Non-expendable tests and blanks for each level .

Expendable tests .

SUPERIOR ACHIEVERS
IN THE CONTINUOUS PROGRESS PLAN

Identification

"From 10 to 20 per cent of a group of children may be able learners , but not more than 1 or 2 per cent are intellectually gifted".

1. Superior Achievers have a mental age far beyond their chronological age and the 'mental surplus' tends to increase through school.
2. They are good at grasping abstract material and making generalizations.
3. They will read eagerly to find an answer to a problem and they will do 'research' reading on a topic of interest.
4. They become interested in science , travel and social problems earlier than other pupils .
5. They are motivated by distant goals and they are particularly interested in informational books .

Bibliography

1. Challenging Gifted Children, Birch and Williams, Public School Publishing Co., 1955.
2. Curriculum Adjustments for Gifted Children, Bulletin No. 1 , U.S. Office of Education, 1953.
3. Gifted Children, S.R. Laycock, Copp Clark, 1957.
4. Helping Children with Intellectual Ability, S.R.A. Handbook, Vol. 2, 1956.
5. Helping the Gifted Child, P. Witty , S.R.A. 1953.
6. The Gifted Child in the Regular Classroom, H.R. Casewell, Teachers' College, 1953.
7. The Gifted Child as Future Scientist, Brandwein, Harcourt B. , 1955.

RESPONSIBILITY OF THE TEACHER OF SUPERIOR ACHIEVERS

Personality - The teacher assumes a responsibility of special significance by virtue of her daily association with the children and her role in their guidance.

Psychology - She must be aware of the developmental tasks to be met and mastered. She must provide an atmosphere that removes barriers and satisfies needs.

Instruction - She must be able to give instruction in a variety of techniques. She must be able to extend or enrich experiences in accordance with the interests and abilities of her pupils. She must be able to work with parents who fail to provide the necessary experiences for their children or exploit their talented boys and girls.

Responsibility of the Home

The home is the original source of stimulation and development for the child's interests and abilities. Parents may exhibit interest and knowledge of the needs, but they may become over-anxious, over-protective or demand performance beyond the child's aspirations and abilities. They can provide a balanced life for the child, stimulating his intellectual curiosity and creative ability. They can provide materials for learning books, musical instruments, tools, crayons, paints and mechanical toys.

They can enrich the child's out-of-school life by:

1. Visits to museums, transportation centres and factories, art galleries and special exhibits.
2. Attendance at concerts and plays that are suitable for children.
3. Provide private lessons in vocal and instrumental music, dancing, art and drama.
4. Trips for pleasure and for observations.
5. Social experiences such as parties in the home, picnics; hikes and camping.
6. Membership in worthwhile organizations in the community.
7. Encourage correspondence.

SOCIAL STUDIES

The enterprise provides many opportunities for the superior pupils to develop their talents.

1. Emphasize the creative and experimental aspects in story-writing, diaries, art, rhythms and dances.
2. Encourage extensive reading in reference books suited to their reading ability and to the problem areas of the unit. Allow them to read orally from reference books to provide information for the group.
3. Emphasize the skills of investigation and research.
 - (a) Locating information - table of contents, alphabetical arrangement and index. Using maps, globes, charts and pictures.
 - (b) The ability to select and evaluate information.
 - (c) The ability to organize information - taking notes, sequential order, composing reports.
4. Stress initiative and originality in independent work - illustrations, charts and graphs. Use strip movies, "imitation T.V.", radio reports. Plan exhibits and displays. Prepare dramatizations.
5. Provide opportunities for developing leadership in class and school activities.
6. Develop opportunities for community responsibility during welfare drives and safety campaigns.

READING AND LANGUAGE

Their desire to share experiences with others is a strong motivating force. They enjoy such activities as --

1. Dramatizations of stories through - acting, puppet shows, or flannel board figures.
2. Illustrations - with pictures, murals, serial movies and shadow shows.
3. Oral and written recall of stories read or heard, book reports, audience reading. Establish standard for oral reading.
4. Free reading when assigned tasks are completed.

READING AND LANGUAGE (Cont'd)

5. Expansion of vocabulary by listing words in a unit, building phonetic families, and structural analysis.
6. Use of glossary for pronunciation and meaning of words.
7. Multiple meanings of words.
8. Practice in skimming for details or descriptive words.
9. Exercising judgment, following directions, predicting outcomes.
10. Locating information in a table of contents.
11. Selecting the main idea of a story from a group of ideas.
12. Analyzing sentences into Who / Did What / Which.
13. Discussion and planning. Write letters to friends. Encourage each child to correspond with a "pen-pal".
14. Arranging events of a story in sequential order.
15. Studying synonyms (same), antonyms (opposite), homonyms (same sound), heteronyms (different use). (See Lang. Grade 2).

N.B. Language in the Enterprise contains many suggestions suited to superior achievers.

SCIENCE

1. Provide a variety of science books such as
True Book of -- by Children's Press Jack Hood Supplies
My Hobby is --
Canadian Geographic and National Geographic Magazines
2. Guide the superior pupils to preview filmstrips, assist in its presentation and compose reports.
3. Field trips should be planned and reported on.
4. Individual excursions with parents should be encouraged.
5. Prepare the pupils for worthwhile T.V. programs.
6. Undertake projects such as care of plants, of pets or bird study.
Prepare Our Bird Book.

SCIENCE (Cont'd)

7. Encourage them to make collections of leaves , seeds , rocks , insects , weeds .
8. Plan and carry out the experiments suggested in the prescribed science texts and in the enterprises .
9. Construct and draw backgrounds for the class museum .

ARITHMETIC

1. Collect and budget to feed a class pet .
2. Supervise the sale of poppies or candy for a worthwhile cause .
3. Develop class and individual records of height and weight .
4. Measure rainfall and snowfall .
5. Estimate distances in the neighborhood .
6. Measure liquids in cups , pints and quarts .
7. Measure for construction of enterprise building .
8. Do arithmetic teasers such as puzzles , magic squares (see Making Sure of Arithmetic - 1 , 2 , 3) .
9. Prepare the "paper money" and price the articles in the store .
10. Act as leaders in games used as drill devices for groups of classmates requiring additional practice .
11. View film strips suited to the learnings for the grade .
12. Read enrichment books such as:

How Much and How Many - Bendrick , McGraw Hill , N. Y .

The Story of Counting

How Big is Big? - Schneider , W. R. Scott

READING FOR SLOWER LEARNERS

E. Bradshaw - Reading Specialist, E.P.S.B.

The slow learner may not be a retarded reader. To prevent reading "disability", the instructional program must be adapted to his rate of learning.

Who Are the Slow Learners ?

1. They have a low score on individual and group tests of intelligence.
2. They are usually below average for their grade.
3. Their scholastic achievement record is consistently low.
4. They have less thinking and reasoning power than children with more ability.
5. Their attention and interest spans are short.

The slow learner will achieve under the following techniques:

1. Present new materials by associating them and explaining them in terms of simple familiar materials.
2. Keep them conscious of progress at all times.
3. Discover special interests and apply learning activities to these interests.
4. Make daily assignments involving specific, meaningful tasks.
e.g. Find the books that tell about the food of Japanese people.
5. Attempt only what the child can learn and allow time to learn it well. Concepts and necessary facts should have frequent repetition. Provide interesting games and drill devices.
6. Teach the children to read better by taking more time for oral reading of prepared material. Stress accuracy rather than speed.
7. Avoid changing the reading series for basic instruction during the first three years of school. Provide supplementary reading material at the same level as the reader used for basic instruction.
8. Secure mastery of sight vocabulary at each level. Teach phonetic elements as they are introduced in the manuals for each reader. Use visual aids to word recognition.

ADJUSTMENTS IN ARITHMETIC FOR SLOW LEARNERS

- | | |
|--------------|--|
| Meaning | 1. Make greater use of concrete social experiences to give meaning and to enrich background. |
| Manipulation | 2. Provide more opportunity to manipulate concrete material to develop number facts and meaning. |
| Visual Aids | 3. Use more varied visual aids to illustrate situations. e.g. Flannel board figures and number perception cards. |
| One Concept | 4. Present only one new difficulty at a time and use a well-graded development to avoid confusion. |
| Development | 5. Spread presentation of successive steps - addition and subtraction with re-grouping - over a longer period of time. |
| Practice | 6. Allow more time for practice exercises and vary them. Use interesting games and devices. |
| Review | 7. Provide more practice and review time for new steps. |
| Problems | 8. Give guidance and direction in reading problems. |
| Assignments | 9. Make sure that assignments are not likely to frustrate pupils. |
| Checking | 10. Check work habits and comprehension. |
| Diagnosis | 11. Give diagnostic tests frequently to locate weak spots. |
| Curriculum | 12. Reduce curriculum requirements to essential arithmetic. |

See "Making Arithmetic Meaningful", Brueckner, Grossnickle, J.C. Winston 1953. pp. 464 - 472.

CURRICULUM GUIDE
FOR THE
CONTINUOUS PROGRESS PLAN

The following framework is not intended to be prescriptive; it is for the convenience of teachers and the units are based on the experience of teachers involved in the plan.

FIRST YEAR (Grade One)
April to June

UNIT 3 (Enriched) Superior Achievers

Reading

1. Test - Basic First Reader
 2. Another First Reader
 Ginn - "Open the Gate"
 Curriculum - "We Three"
 3. Test - Gates Primary - Word Recognition and Paragraph Reading
-

Language

1. Extend experience and increase standards - conversation, discussion, planning, telephoning, cooperative reports.
 2. Simple punctuation.
 3. Letters.
 4. Try original stories and poems.
-

Spelling - See "Talking and Writing, Grade 2", page viii.

1. Supply initial and final consonants and missing vowels in simple words.
 2. See Reading Readiness Activities, page 86 - "Beginning Spelling".
 3. Lessons 1 - 6 in My Spelling, Grade 2.
 4. Test as per instructions for "Achievement Testing".
-

Handwriting

1. Reduce size of manuscript to 3/8" lines, 2 spaces high.
-

Arithmetic

1. Extend learnings according to ability.
 2. Number facts to 10.
 3. Column addition to 10.
 4. Consult other texts for enrichment - Numbers We See, Numbers Tell Their Story, Number Roundup.
 5. Compose number stories.
 6. Discuss multiples of 2, 3, 4, 5, (to 10).
 7. Final test for all grade one pupils.
-

Enterprise

1. Any of the last 5 titles.
2. Reading for information.
3. Oral reporting.
4. Compose cooperative written reports.
5. Encourage original & creative work in language, music and physical education.
6. Make and read simple maps of the classroom, school and yard.
7. Perform experiments related to enterprise.

FIRST YEAR (Grade One)
April to June

Average Pupils (Unit 3)

Reading

1. First Reader - Basic.
2. Enrichment if possible.
3. Follow manuals closely.

Slow Movers (Unit 2)

1. Follow manuals closely.
2. Basic Primer.
3. Build sight vocabulary.
4. Illustrate new words.
5. Provide interesting practice on new words.
6. Use several word games and quiet word puzzles.

Test - Gates Primary - Word Recognition and Paragraph Reading

Language

- | | |
|---------------------------------------|----------------------------------|
| 1. Oral and written simple sentences. | 1. Mostly oral, good sentences. |
| 2. Telling events in proper sequence. | 2. One sentence under a picture. |
| 3. Composing class charts. | |

Spelling

- | | |
|--|--|
| 1. No formal spelling. | 1. No formal spelling. |
| 2. Try consonant substitution as in Reading Readiness Activities, page 86. | 2. Write familiar words. |
| | 3. Substitute initial or final consonants. |

Handwriting

- | | |
|-----------------------------|-----------------------------|
| 1. Continue as in Grade 1. | 1. Continue as per Grade 1, |
| 2. Maintain high standards. | writing one or two words. |

Arithmetic

- | | |
|---|---|
| 1. Continue as per authorized text for grade 1. | 1. Continue as per authorized text. |
| 2. Use manipulative aids. | 2. Use manipulative materials to 'discover' number facts. |
| 3. Stress understanding. | 3. Stress a thorough understanding. |
| 4. Compose original problems. | 4. Relate number experiences to classroom activities. |
| 5. Use number perception cards. | |
| Use 'flannel' board to compare numbers and to decide 'more' or 'less' and 'how many more'. Final test for all grade one pupils. | |

Enterprise

Same enterprise with activities adjusted to suit ability and talent.
Compose cooperative reports.

SECOND YEAR (Grade Two)

Sept. to Nov. (Approx.)

UNIT 4 Superior Achievers

Reading

Test with McKee Inventory of Phonetic Skill; See Talking & Writing, p.xx

1. Basic 3/5 of Grade 2, Level 1. Use one of -
 Friends & Neighbors to page 175
 We Are Neighbors to page 194 or
 Come Along to page 150 +.
 2. Parallel Reader - Along the Way or Three Friends.
 3. Research Reading in the Enterprise - "Autumn Parade" or "Community Helpers"
 4. Leisure Reading. Encourage wide reading and keep records.
 5. Oral Reading - Audience-type. Establish good standards and evaluate performance. Read to share information or to entertain.
- * Plan carefully to ensure that the necessary reading skills are taught.

Language - See "Talking and Writing" page 29

1. Teach the skills and practice the topics listed for Autumn enterprise.
2. Encourage oral reporting and written work according to ability.
3. Emphasize the creative aspects in oral work, dramatization, poetry, etc.
4. Develop vocabulary and build phonetic families.

Handwriting

1. Continue manuscript two spaces high using interlined paper.
2. Insist on high standards of written work in all subject areas.

Spelling

1. Administer the E.P.S.B. "Spelling Improvement" and a "Spelling Ability" test to determine the level of achievement of each child.
 Lessons 6 to 12.
2. Select challenging seat work exercises to supplement "Working with Words".

Arithmetic

1. Administer the Pre-Test for grade two to determine the areas of strength and weakness.
2. Use a workbook that includes the number facts to 20.
3. Teach 1/3 of the program for grade two and extend understanding.
4. Compose oral problems and proceed from the concrete to the abstract stage as quickly as the ability of the children will permit.
5. Use interesting games to 'fix' facts in the minds of the children.

Enterprise - The enterprises appear in the order of difficulty and the language units are in the same order. It is wise to select from the first units. Planning is imperative if two ability groups are to be involved in the same enterprise. Research reading and language activities must be adjusted to suit each group.

The aims of the enterprise appear in the Resource Unit, p. iii, and the objectives for each enterprise may be found in each unit.

Provide opportunities for research reading, original reporting, creative activities, science experiments, group leadership and class evaluation of activities.

SECOND YEAR (Grade Two)
Sept. to Nov. (Approx.)

Average Achievers Unit 4

Slow Movers Unit 3

Reading

Test with McKee Inventory of Phonetic Skill Test 1, Talking and Writing.

Display key cards of difficult elements.

1. Review a First Reader that is new to them.
2. Take 1/5 of Grade 2, Level 1.
3. Two reading periods per day for lower average.
4. Read in thought units.

1. Review pre-primers of another series.
2. Check sight vocabulary.
3. Use 2 reading periods per day.
4. Review a primer of another series.
5. Stress word recognition.
6. Continue with the basic series used in grade one.

5. Leisure Reading - Encourage wide reading and keep records.

Superior readers may check less able readers.

6. Audience-type Oral Reading - Establish good standards and evaluate performance.

* Make plans for the whole unit and daily plans as well.

Language - Emphasize oral language. Use Talking and Writing, p. 29
adjusting activities to writing ability.

1. One or two-sentence stories.
2. Auditory recognition of syllables.

1. One-sentence stories.
2. Avoid too much written work.

Handwriting

1. Try interlined paper.
2. Maintain good letter forms.

1. Continue 2 spaces high.
2. Maintain high standards.

Spelling - Administer "Spelling Improvement" and "Spelling Ability" to
discover which children need special help.

1. Begin spelling. Display 'key' cards.
2. See "Talking and Writing",
pp. viii - xvi.
3. Spell phonetic families.

1. Consonant substitution, supplying missing vowels.
2. Practice phonetic families -
hen, ten, men, den, then.

Arithmetic -

1. 1/5 of Grade 2 program.
2. Review number facts.
3. Illustrate 'teens'.
4. Display number cards.
5. Use manipulative aids.
6. Use meaningful games to fix
number facts.

1. 1/5 of Grade 2 program.
2. Use concrete materials,
perception cards, bead frames,
flannel board and 100 cards.
3. Stress seeing groups to 10.
4. Illustrate a variety of groupings
e.g. $6 = 2 \text{ 3's}$, 3 2's , $4 + 2$, $5 + 1$

Enterprise - Planning is essential. The enterprises in each Resource Unit
and the units in Language are listed in order of difficulty. The enterprise
must be adapted to suit two ability groups. See Introd. Assign reading
and written work according to ability. Autumn Parade (R.U. p. 2) or
Community Helpers (R.U. p. 67). Compose planning charts and experience
charts from excursions, observation and reading. Note: Evaluation,
Resource Unit 2, page 34. Complete your checklist p. xiii.

1. Contribute according to ability. Assist with oral planning and evaluating.
2. Write one or two-sentence reports
under a picture.

2. Collect pictures and write
captions.

SECOND YEAR (Grade Two)

November to January

UNIT 5 Superior Achievers

Reading - Plan for the whole unit and each day as well.

1. Basal Text - Complete Grade 2, Level 1 and test. Evaluate growth.
Level 2 - More Friends and Neighbors - page 102
Around the Corner - page 100
On We Go - page 112
2. Parallel Reader - Level 1 or Grade 2 Science, Health or Social Studies text.
3. Research reading on Christmas.
4. Leisure Reading and Book Discussions.
5. Audience-type Oral Reading.

Language

1. Select language to suit the enterprise.
2. Encourage creative language. Diaries, poems and stories.

Spelling

Attempt to complete 4 lessons or more in 3 weeks.

Spelling Lessons 13-24. Use more challenging exercises in word analysis.

Handwriting - Practice evaluating handwriting on a class scale ; made from class examples. Continue manuscript 1/2 space high without centre lines.

Arithmetic - Give adequate practice to 'fix' addition and subtraction facts..

Work from doubles $\begin{array}{r} 8 \\ 8 \\ 8 \end{array}$ Learn multiples - 3 fours are 12
 $\begin{array}{r} 7 \\ 15 \end{array}$ $\begin{array}{r} 8 \\ 16 \end{array}$ $\begin{array}{r} 9 \\ 17 \end{array}$ 4 threes are 12
3 fives are 15, etc.

Complete the second third of the Grade 2 program.

Mid-term test. Learn to divide groups of objects into smaller groups.

How many 3's in 15? How many 6's in 12, etc.

Enterprise - See Resource Unit 3, pp. ii-xii.

1. Christmas in Other Lands - Grade 3 Resource Unit, p. 42. Compare customs in Holland and Mexico with Canadian customs.
2. Begin an enterprise on Eskimos. Stress location of information.
Cooperative written reports.

Geography - Locate countries on globe, discuss routes. Learn continents and oceans. Directions in relation to Canada. Climatic zones of countries studied. Proximity to North Pole and Equator.

Science and Health - These pupils can do the science of both grades.

See Resource Unit 3 pp. 43, 66 and Resource Unit 2 pp. 46, 48, 53, 55, 57.
(Grade 3) (Grade 2)

Concepts of both grades may be developed through reading, discussion and experiments.

SECOND YEAR (Grade Two)
November to January

Average Achievers Units 4 to 5

Slow Movers (Unit 3)

Reading - Plan for the whole unit and each day as well.

- | | |
|---|---|
| 1. Complete Grade 2, Level 1.
One or two periods per day.
Use publisher's test. | 1. First Reader continuing basic series used in grade one.
Publisher's test when finished. |
| 2. Use a parallel reader. | 2. Experience charts. |
| 3. Research and Leisure Reading.
Oral reading with good tone, breathing and posture. | 3. Two guided reading periods per day. |
| 4. Use colorful records. | |
- * Low-average and slow movers should receive formal reading instruction from the same series of readers that was used in Grade One.

Language

Select learnings from Talking and Writing, page 38a.

Same as average. Adapt activities to suit ability.

Spelling

Lessons 7-12. Stress auditory perception with weak spellers.

Stress auditory perception of sounds.
No formal spelling.
Continue phonetic families.

Handwriting

Begin using interlined paper to reduce manuscript.

Same as average if pupils have good letter forms.

Arithmetic

Many phases of arithmetic may be taken with combined groups of pupils.	
Continue Grade 2 program.	Continue Grade 2.
Mid-term test. Check weak areas.	Mid-term test.

Give ample practice on number facts.

Enterprise

Grade 2 - Christmas, as in grade 2 Resource Unit.

Use Grade 2 unit.

Use the same enterprise for both groups adjusting learnings and activities to suit the ability of each group.

"Superior" will study Christmas in other lands, while "average" study the Christmas story.

Use a Grade 2 enterprise.

Adapt learnings from whichever enterprise the other group should take. It is impractical to attempt to do two enterprises at the same time.

Science and Health learnings are outlined in detail for the grade-two enterprise on Christmas.

SECOND YEAR (Grade Two)
February and March

UNIT 6 Superior Achievers

Reading

- | | |
|--|--|
| 1. Complete Grade 2, Level 2.
Use publisher's test. | Make sure that all skills have
been developed. |
| 2. Use parallel reader. | Tests will reveal areas of |
| 3. Research Reading - Grade 3 level. | strength and weakness. |
| 4. Leisure Reading - recorded.
Oral book reports.
Dramatize favorite episodes. | Evaluate progress using informal
reading checklist in the Ginn manuals. |
| 5. Use Test 2, McKee Phonetic Inventory, "Talking and Writing",
p. xxii. | |
- Reteach elements necessary.
-

Language

"Language in the Enterprise", or Resource Unit for Eskimos.
Encourage creative work.
Teach children how to 'proof-read' the written work of others and
their own.

Spelling

Expand "Working with Words" in each lesson.
Complete Grade 2 program..
Learn to spell simple words in each enterprise.

Handwriting

Introduce cursive writing - See "Language in the Enterprise", pp. iv & v.

Arithmetic

Make sure that the number facts to 20 are 'fixed'.
Complete Grade 2 program (Supplement to Making Sure, Book 2).
Use Grade 3 Survey Test to discover areas of weakness.
Teach Roman Numerals to XII. Use in meaningful situations -
Old Clocks, Contents of My Spelling.
See also pp. 52-54 in this book.

Enterprise - See Resource Unit 3, pp. xiv-xviii.

Continue Eskimos until completed. You may introduce Holland.
Stress skills of reading for information.
Teach taking notes from reading.
Compose reports from notes.
Stress the skills of the Social Studies and Evaluation, Resource Unit 3,
p. xvii.
Complete checklist, p. xiii.

SECOND YEAR (Grade Two)
February and March

Average Achievers Units 5-6

Slow Movers Unit 4

Reading

1. Begin Grade 2, Level 2.
2. Parallel Reader.
3. Research reading Grade 2.
4. Record books read.

1. Begin Grade 2, Level 1.
2. Two periods per day.
3. Experience charts.
4. Leisure reading.

* For low-average and slow movers continue with the reading series used before to maintain a sequential development of skills and to avoid too many new words.

Language

"Talking and Writing" to suit enterprise.

Same language as the other group adapted to ability.

Spelling

Grade 2, Lessons 13-24.

Grade 2, Lessons 1-6. Use all senses to fix words. See "Talking and Writing", Introduction,

Handwriting- Maintain high standards in all written work.

Continue manuscript reduced to 1/2 space high.

Manuscript reduced to 1/2 space - with interlined paper.

Arithmetic

Proceed at normal pace.
Fix number facts.

Proceed with Grade 2 program.
Use manipulative devices to ensure understanding.
See "Adjustments for Slow Learners",
p. 33.

Enterprise - Same unit for both groups in the classroom. Activities must be adjusted to suit the ability of each group.

Grade 2 Enterprise - Post Office or Transport.
Encourage research reading.
Teach cooperative report writing

Same as the other group, but adapt activities to suit reading and language ability.

Complete your checklist,
Resource Unit, p. xiii.

SECOND YEAR (Grade Two)

April to June

UNIT 7 Superior Achievers

Reading

1. Basic - 3/5 of Grade 3, Level 1, either Ginn or Curriculum Foundations.
Streets and Roads, page 190
Finding New Neighbors, page 195 * Many teachers find
Looking Ahead, page 195 the workbook of
2. Parallel - Another Grade 3 reader. Streets and Roads more
3. Research reading for enterprise. challenging.
4. Leisure reading. A variety of book reports.

Tests - Gates Advanced Primary Paragraph Reading and Word Recognition.
Record grade scores on Cumulative Records.

Language

Use "Language in the Enterprise".

Increase vocabulary. Continue proof-reading of all written work.

Spelling

Grade 3, Lessons 1-6.

Use E.P.S.B. Spelling Improvement for Grade 2 and Spelling Ability
Scale. Record on Cumulative Records.

Handwriting

Continue cursive. Refine letter forms but do not insist on "free arm"
movement.

Teach children to evaluate writing and compare it to a scale.

Arithmetic

Grade 3 Survey Test. Reteach areas showing weakness and 1/3
of Grade 3 program.

Rapid review of Grade 2 program.

Reinforce number facts to 20.

Teach simple regrouping ('carrying' in addition.)

For enrichment, consult new manuals in arithmetic.

Grade 2 Final Test for purposes of comparison with average groups.

Enterprise

Use Resource Unit or Supplement for Grade 3.

Complete Holland or another industrial country (Japan).

Complete your enterprise checklist, Resource Unit, p. xiii.

END OF SECOND YEAR IN SCHOOL

SECOND YEAR (Grade Two)
April to June

Average Achievers Unit 6

Slow Movers Unit 4

Reading

1. Complete Grade 2 program.
Use publisher's test.
Use McKee Phonetic Test 2.
2. Parallel reading.
3. Research reading.
4. Leisure reading.

1. Complete Grade 2, Level 1.
Publisher's test.
McKee Phonetic Test 1.
2. 2 guided reading periods per day.
3. Build sight vocabulary.
4. Display pictures of phonetic elements that present difficulty.

Tests - Gates Advanced Primary Paragraph Reading and Word Recognition.
Record grade scores on Cumulative Records.

Language

Use "Talking and Writing" to suit enterprise unit.

Same program modified.

Spelling

Continue Grade 2.

Continue Grade 2.

Use E.P.S.B. Spelling Improvement for Grade 2 and Spelling Ability Scale.
Record on Cumulative Records.

Handwriting

Continue manuscript reduced.
Introduce cursive of familiar names.
Children do not write, but compare orally.

Continue manuscript.
Refine letter and number forms and require high standards.

Arithmetic

Complete Grade 2 program.
Teach Roman Numerals to XII.
Locate uses of Roman Numerals.

Complete Grade 2 program in preparation for final test.

Enterprise

Grade 2 unit that appears near the end.

Same as other group.

"Storyland" or "How We Travel".

Limit activities to information available at their reading level.

END OF SECOND YEAR IN SCHOOL

THIRD YEAR (Grade Three)
September to November (Approx.)

Superior Achievers Unit 8

Reading

1. Complete Grade 3, Level 1. Use publisher's test to diagnose difficulty.
Begin Level 2. Appraise readiness - see Ginn manuals.
 2. Complete Parallel Reader - Emphasize critical reading.
Classify stories. Evaluate character. Recognize phrases of time and place. Extend vocabulary. Syllabication and accents.
Oral reading more refined. Audience type.
Use Uncle Funny Bunny or the Grade 4 book, "Uncle Ben".
 3. Research reading in enterprise. Taking notes.
 4. Leisure reading and book reports. Encourage variety in books read.
Original book reports. Dramatization. Discussions.
-

Language

"Language in the Enterprise", p. 92 or 113.
Adapt the learnings and activities to the enterprise.
Proofread written work of others, using a cooperative checklist.

Spelling

Grade 3, Lessons 7 - 12. Use word analysis from "Language in the Enterprise".
Phonetic and Structural Analysis as above.

Handwriting

Refine the size and letter forms.
Begin using pen and ink. (A good ballpoint with a fine point is permissible.)

Arithmetic

Complete 3/4 of the grade three program. Use enrichment ideas.
Correlate arithmetic with enterprise.
Teach estimating and criticizing answers.
Compose problems related to enterprise.

Enterprise

"Our Community" or "Edmonton Then and Now" - 1960 supplement, p. 387.
Plan a class excursion. Make maps and teach map symbols. See Geography in Grade 3 Resource Unit Supplement 1960, p. vi. Stress research and reporting, social skills and evaluation. See Resource Unit p. xvii - Enterprise in Grade 3".
Provide opportunities for discussion and leadership.
Correlate science, health and safety as much as possible.
Plan Science program for the term. See Resource Unit 1960, p. xv.

THIRD YEAR (Grade Three)
September to November (Approx.)

Average Achievers Unit 7

Slow Movers Unit 6

Reading

1. Basic review Grade 2, Level 2.
Move quickly. Do not use a
workbook. Begin Grade 3,
Level 1 and workbook.
2. Parallel reader of same level.
3. Research Reading.
4. Leisure Reading.

Grade 2, Level 2 in series used as
basic.
Use the workbook Grade 2, Level 2.
Teach skills carefully.

* "Uncle Funny Bunny" is not
suitable for low average or low
achievers.

Administer McKee Inventory of Phonetic Skill, Test 2.
Reteach weak areas.

Language

Use "Language in the Enterprise",
page 1. Adapt these learnings to
whichever enterprise you use.

Same as the other group but adapt
assignments to ability.

Spelling - Test with Spelling Improvement and Ability.

Grade 3 - Lessons 1 - 6.

Slower learners need special help
to 'hear' sounds.

See "Language in the Enterprise", p. xiii.

Continue Grade 2 as far as possible.
Use several techniques to 'fix' words.

Handwriting - See "Language in the Enterprise", pp. iii and iv.

Learn to evaluate handwriting.

As pupils write spelling on the black-
board, evaluate and criticize form.

Arithmetic - Administer Survey Test for Grade 3.

Review and reteach facts and concepts that are weak.

Oral work on problems to make sure that they are understood.

Teach problem solving carefully. Much oral work.

Try to make generalizations about Total, Subtraction, Difference, etc.

Enterprise

Indians or Eskimos and/or "Our
Community".

Geographical concepts as outlined in
Supplement to Resource Units, 1960.
Stress skills of social studies.

Same as other group.

Research confined to food, clothing
and shelter.

Information from pictures and maps.
Keep reporting fairly simple.

Plan the program in science, safety and health.

Music, art and physical education are taught to the class as a whole.

THIRD YEAR (Grades 3 & 4)

November to January 31

Superior Achievers Unit 9

Reading

1. Grade 3, Level 2. Test with publisher's test.
2. Parallel Reader - Fun & Fancy or Tall Tales.
3. Research reading on enterprise.
4. Oral reading to impart information or entertain.
Evaluate oral reading of classmates.
5. Leisure reading. Widen interests. Original book reports.
Book discussions.

Language

Use "Language in the Enterprise". See pp. 133 and 187 for suitable learnings and activities. These may be adapted.
Encourage creative writing related to enterprise or reading.

Spelling

Complete Grade 3 program and test with Spelling Improvement, Grade 3 and a Spelling Ability Test.
Reinforce areas of weakness.

Handwriting

Continue to refine form, slant and spacing.
Teach pupils to evaluate their handwriting on a scale.

Arithmetic

Complete grade three program if possible and test with Final Test for Grade Three.
Reinforce areas of weakness. Enrich vocabulary.
Use enrichment ideas. See this booklet.

Enterprise

Christmas in Other Lands should include Italy and Norway, but you may prefer to study another unit at this time - one of "Life on Ships", "Trees are Treasures", "Story of Wheat" and one of - Japan, Jungle Life or Desert Life.

Emphasize geographical concepts, social-study skills, ability to make generalizations and social development. Evaluate behavior in group work. Encourage experiments in science.
See Evaluation in Supplement to Resource Units.

N.B. Superior Achievers should have completed the grade three program about January 31, but this is not compulsory.

THIRD YEAR (Grade 3)
November to January 31

Average Units 7 - 8

Low Units 6 - 7

Reading

1. Complete Grade 3, Level 1 & test.
2. Parallel Reader for high average.
3. Research Reading according to ability.
4. Leisure reading.
5. Oral reading in audience situation. Reteach skills that are deficient.

1. Complete Grade 2, Level 2 and workbook. Test and reinforce skills needed.
2. Research reading at appropriate level.
3. Encourage leisure reading.
4. Leisure reading should be guided.
5. Encourage smooth reading with expression. Use suitable material.

Language

See "Language in the Enterprise", pp. 43 - 89. Begin pp. 91 - 112.

Same as the other group adapting assignments to ability.

Spelling

Continue at normal pace.
Extend word analysis as per "Language in the Enterprise".
Phonetic and structural analysis.

Complete Grade 2 program.
Give practice in auditory discrimination where weakness is evident.

Handwriting

Continue cursive writing.
Evaluate.

Introduce cursive writing.
See "Language in the Enterprise", pp. ii - v and 14.

Arithmetic

Continue grade three program. Mid-term test. Reteach areas of weakness. Use interesting drill devices.

Continue grade three program.
Use interesting games for practice. Much oral work in problem solving. Use manipulative devices for "re-grouping".

Enterprise

Christmas in Other Lands and Holland in New Year.
Develop geographical knowledge and understandings.
Independent reporting.

Same as other group, but stress Christmas.
Cooperative reporting according to ability.
Participation in creative activities according to special talents and abilities.

THIRD YEAR
February to June

Superior Achievers (Grade 4) Units 10 and 11

Reading

1. Basic 2/3 of Grade 4 reader and workbook.
2. Parallel reading from grade four, level one.
3. Research reading according to ability.

Teach them to locate information and proof ; to recognize stated or implied facts , to react to sensory images and to appreciate rhythm.
Teach them to read creatively - to anticipate outcomes , to recognize story problems and plot structure; to summarize and organize ; to recognize sequence. Enrich vocabulary and extend dictionary skills.
Give practice in structural analysis.

Language - See Bulletin 2c, p. 119.

2/3 of program for grade four. See texts "Language Comes Alive 4" or "Language Journeys 4".

Continue with "Language in the Enterprise".

Relate language learnings to enterprise activities.

Spelling

2/3 of program for grade four. See texts.

Test with grade three Spelling Improvement and Spelling Ability for purposes of comparison.

Handwriting

Continue to refine cursive writing.

Arithmetic

Use a textbook with the 'new' approach, if possible.

Use Grade Four Survey Test.

Teach 2/3 of the grade four program.

Enterprise

1. Try to cover three enterprises that widen the child's experiences.
2. Pioneer Life or Living in Hot Wet Lands (Grade 3 Supplement)
Japan (Grade 3) or China (Grade 4).
3. Mexico or Norway or Switzerland (Grade 4).

Science - See p. 50 for extension suggestions.

THIRD YEAR (Grade 3)

February to June

<u>Average</u>	Units 8 & 9	<u>Low</u>	Units 7 & 8 (if possible)
<u>Reading</u>			
1. Grade 3, Level 2.		1. Grade 3, Level 1 and	
2. Parallel readers with High average group.		2. Parallel reader.	
3. Enrichment reading.		Begin Level 2 if possible.	
Use "Uncle Funny Bunny".		3. Encourage leisure reading and book discussions.	
Increase development.		4. Research reading on enterprise.	
4. Leisure reading guided.		5. Refine oral reading.	
Book discussions and reports.			
5. Refine Oral Reading Skills.			

<u>Language</u>			
"Language in the Enterprise" to suit enterprise. Teach skills as on pp. 133, 160 and 188. Others included with enterprise units.		Teach same language as other group. Adjust activities and assignments to suit ability of the group.	

<u>Spelling</u>			
Complete grade three program and test as per Superior.		At least half of the grade three program.	
		Use the same tests for comparison.	

<u>Handwriting</u>			
Continue to refine cursive writing.		Continue to refine cursive writing.	

<u>Arithmetic</u>			
Complete grade three program and use Final Test.		Complete as much as possible.	
		Use Final Test for grade three.	

<u>Enterprise</u>			
Two enterprises from the Supplement.		Same enterprise as other group.	
One should be from Section D. How We Use Natural Wealth.		When a grade four unit is studied the activities must be carefully adapted.	
See "Framework of Enterprise Program".			

SCIENCE FOR SUPERIOR ACHIEVERS

THIRD YEAR - February to June

Units 10 and 11 - During this period the superior achievers should study science from the grade four program, and most of the concepts can be taught with the enterprises.

The authorized texts may be borrowed from the grade four classroom as needed. They are:

1. Beauchamp - Discovering Our World, Book 1
2. Craig - Discovering With Science
3. Thurber - Exploring Science, Book 4

Only part of the grade four course in science can be covered, the other concepts will be taught during the fourth and fifth years.

The following sections from the grade four course as outlined in Bulletin 2b have been selected and correlations with enterprises are suggested.

- p. 70 Living Things - This might be handled in Jungle Life or Desert Life, classifying the animals of the desert or the jungle. Correlations with the readers are suggested on pages 71 and 73.

The section on fish might well be covered during a study of Norway or Holland.

Bacteria and germs could well be studied under Jungle Life, Health and Safety or Pioneer Life.

See Discovering With Science 4, p. 144.

- p. 76 The Earth and the Universe might well be taken as geography with any enterprise, particularly "The Community".
Discovering With Science, Ginn pp. 65 - 105, 211 - 235.

- p. 78 Electricity is a topic that appeals to superior achievers, particularly the experiments suggested. It may be covered in enterprises on Norway, Switzerland, The Community or Health and Safety.
Discovering With Science 4, p. 165.

- p. 80 Our Body is a Machine. See Exploring Science 4, pp. 145 - 158.
Discovering With Science 1, p. 70. This may be correlated with Health and Safety.

Machines Help Man - Exploring Science 4, Air in Aviation p. 159.

CHECKLIST FOR ACCELERATED PUPILS

SUMMARY CHECKLIST

1. Do you know who your gifted children are?
2. Have you set up centres of interest to make enrichment possible?
3. Have you begun a collection of enrichment materials and books in your room?
4. Have you eliminated from your program unnecessary repetitive drill for the gifted?
5. Have you planned enrichment with the gifted to discover their interests?
6. Have you grouped some of your gifted together for special projects?
7. Have you given them a chance to do individual research?
8. Have you evaluated your work with gifted children?
9. Have you utilized various good enrichment suggestions?

CHECKLIST FOR LEADERSHIP ABILITY

1. Have you identified a group of leaders?
2. Have you considered teachers' and students' judgment in leaders?
3. Have you decided how to help them?
4. Have the pupils had a part in planning?
5. Have you arranged for continued assistance to your leaders?
6. Have you plans to pass your information to the next teacher?

CHECKLIST FOR SCIENTIFIC ABILITY

1. Have you identified children with scientific interest and ability?
2. Are you interested in developing scientific interest in your children?
3. Have you introduced science to all your pupils?
4. Have you arranged opportunities for them to experiment?
5. Have you given individual help to pupils with special ability?
6. Have you told the family of the child's aptitude in science?
7. Have you put them in touch with professional scientists?

CHECKLIST FOR CREATIVE WRITING ABILITY

1. Have you identified children with creative writing ability?
2. Have you provided opportunities for every child to write creatively?
3. Have you given special opportunities to children with creative writing talent?
4. Have you conferred with parents of these children to plan ways to improve this talent?

CHECKLIST FOR DRAMATIC ABILITY

1. Have you identified the children in your classroom who have dramatic ability?
2. Have you tried out some of the simple parts of play-acting, such as pantomiming familiar activities?
3. Have you used play-acting to "bring home" important facts and knowledge in regular subjects like history or English?
4. Have you used play-acting to help children understand human relations and social problems?
5. Have you given special encouragement to children with special dramatic ability?
6. Have you discussed the dramatic ability of the children with their parents?

NUMBER ACTIVITIES FOR SUPERIOR ACHIEVERS

1. Seeing Through Arithmetic -- Hartung et al, Scott Foresman 1956.
2. Making Sure of Arithmetic -- Teacher's Edition, Books 1, 2 and 3.
3. Discovering Numbers -- Grossnickle et al, J.C. Winston, Teacher's Edition.

Games for Practice

Practice devices for small groups of children may be games associated with an enterprise. When children have completed assignments, they should be allowed to practice numbers as they need it.

Ring Toss, Hop Scotch, Walk the Tightrope, Lasso the Cow, Fish Pond and Knock-down Clowns may be used for addition and subtraction, multiplication and division.

Chart for Basic Facts

Help the children to prepare this chart.

ADDITION

2	3	4	5	6	7	8	9	10	11	12	13	14	
1+1	2+1	3+1	4+1	5+1	6+1	7+1	8+1	9+1	9+2	9+3	9+4	9+5	etc.
	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	2+9	3+9	4+9	5+9	
		2+2	2+3	2+4	2+5	2+6	2+7	2+8	8+3	8+4	8+5	8+6	
			3+2	4+2	5+2	6+2	7+2	8+2	3+8	4+8	5+8		
				3+3	3+4	3+5	6+3	3+7	7+4	7+5	7+6		
					4+3	5+3	3+6	7+3	4+7	5+7	6+7		
						4+4	5+4	6+4	6+5	6+6			
							4+5	4+6	5+6				
								5+5					

Make observations -- 2 facts for 3; 3 facts for 4, etc.

A similar card for subtraction might be made for each pupil.

Flannel Board -- Number facts may be demonstrated with cut figures.

How Far Can You Go?

4 and 3 are 7; there are 5 other facts; write them.

Supply the missing numbers

$$\begin{array}{r} 7 \\ - ? \\ \hline 4 \end{array} \quad \begin{array}{r} ? \\ + 5 \\ \hline 8 \end{array}$$

Make up number problems about facts

$$\begin{array}{r} 8 \\ - 3 \\ \hline 5 \end{array}$$

Money

Different ways of paying for things -- thirteen ways to pay for a 25¢ toy.

Use as few coins as possible to pay for a 75¢ toy, a 65¢ toy and an 85¢ toy.

Add quickly

Without paper or pencil

8	7
4 -- Think 12, 15, 22.	4 -- 11, 19, 22 or
3	8 11 + 11 = 22.
<u>7</u>	<u>3</u>

Checking

Problems after you have solved them. Is the answer sensible?

Mistakes

Look for mistakes in problem work. What did he do that was wrong?

Add	29	
	<u>34</u>	He forgot to add the extra 10.
	53	

Ingenuity

Find answers to difficult problems -- 6 flowers in 4 vases ____? dozens.

Multiply

Quickly 3×30 ; 3×3 are 9; four 30's are ____; five 30's are ____;
 8×20 ; 3×400 .

Division

Use division a new way.

16 quarters are ____ dollars; 14 half dollars are ____ dollars;

25 nickels are how many quarters ____?

Estimating Answers

29¢ is almost 30¢ \$1.98 is almost \$2.00

105 is almost 100 or 200? \$8.15 is nearer to \$8.00 or \$9.00?

e.g. $\$4.88 - \1.01 is almost $\$5.00 - \$1.00 = \$4.00$

$\$4.06 + \2.90 is almost $\$4.00 + \$3.00 = \$7.00$

Decide about what the answer will be _____ $\$5.00 - \1.48

Think $\$1.50 + .50 = \2.00 ; $\$5.00 - \$2.00 = \$3.00$

$\$5.00 - \$1.50 = \$3.50$

$4 \times 62 =$ $240 + 8 =$ $912 - 797 =$ $900 - 800 = 100$

152	150
<u>- 78</u>	<u>- 80</u>

What is the divisor? $\begin{array}{r} 21 \\ \overline{)126} \end{array}$

1. Make original problems about a birthday party using number facts such as $4 + 4 =$ and $8 - 7 =$ and etc.
2. Write all the number facts you have learned that have remainders of 1, of 2, of 3, etc.
3. Name things we buy by the dozen. Make up problems about a dozen cookies, $1/2$ dozen, $1/4$ dozen, $1/3$ dozen.
4. Write your age and double your age in Roman Numerals.
5. List things you buy in pairs, by the dozen, by the quart.
6. Find out what Indians of long ago used for money.
7. Make up a chart about groceries from the newspaper.

Bought a quart of milk --	Cost	Money Given	Change
	21¢	25¢	4¢

8. Make up additional problems about gathering some more, doing something more times, baking some more, gaining weight.
9. Tell ways in which numbers are used in making an automobile trip -- speed limits, gasoline, distance and etc.
10. What is the meaning of bolt, bundle, dozen, earn, flock, gain, inch, mile, pair, quartette, trio, duet, team, total, bunch, crowd, herd, lose, pile, row, team, yards etc.
11. Magic Squares

8	1	6
3	5	7
4	9	2

Why is it a magic square? Make another by adding 2 to each number.
12. If we buy at a sale we save money. Why? Show how much we save on articles advertised "On Sale" in the newspaper.
13. Keep a weather record. Make a ribbon thermometer. Learn the meaning of thermometer, degrees, freezing point, temperature.
14. Compare children as to weight, height, time taken to complete a 30-minute test. Write sentences such as:

Mary used _____ minutes less than the time.

Jack is _____ pounds heavier than Jim.

Bill is the tallest boy in the room.
15. Find out the quantities of insects or weed seeds eaten by birds.
16. List ways in which scales are used for weighing.

SOME QUESTIONS AND ANSWERS ABOUT THE CONTINUOUS PROGRESS PLAN

A. General

1. What is the main purpose of the Continuous Progress Plan?

To overcome the rigidity of the conventional grade system by facilitating the smooth and natural progression of pupils through school at varying rates according to their ability. It will help to eliminate the wastage caused by repeating grades and at the same time provide greater challenge to the more able students.

2. Will the more capable pupils be the chief beneficiaries?

No. The plan is designed to provide benefits for all pupils.

3. Does the plan involve any changes in educational philosophy or teaching procedures?

No changes. The objectives still will be the same and teachers still will continue to use the same methods which are recommended in any good modern program.

4. Has consideration been given to using such plans as homogeneous grouping or enrichment within the grade instead of the Continuous Progress Plan?

Yes. The Continuous Progress Plan was adopted because it had more advantages for our purposes than any of the other plans considered.

5. Are grades eliminated?

Yes and no. The emphasis on the grade concept of a fixed amount of work each child must cover at a uniform rate regardless of ability is sharply reduced. This is especially true for the superior and slower-learning pupils. The trend will be toward the use of the term "first year's work, second year's work" and so on.

6. What factors are most important to the successful development of the program?

The understanding and enthusiasm of the teachers are essential. The members of each staff must study and discuss the plan thoroughly so that they are prepared to make it work. Most parents are very favourable to the plan but the teachers must understand and believe in it themselves if they are to keep the parents adequately informed and maintain their cooperation and support.

B. Grouping and Classification

1. What factors are considered in recommending a pupil for the accelerated or slow learning program?

(1) Mental capacity (2) Achievement (3) Emotional and Social adjustment (4) Health (5) Teachers' judgment (6) Attitude of parents (parental cooperation is essential.)

2. Is there a suggested minimum I.Q. for pupils in the superior group?

There is no rigid policy. Candidates for the accelerated group must be high achievers in all of the skill subjects. Pupils in the accelerated group generally fall in the 110 - 135 I.Q. range. See screening scale on page 11 of this manual. The top group is not to be limited to the very small percentage of highly "gifted" pupils in the population.

3. Does progress depend upon reading achievement alone?

No. Reading is very important but progress in arithmetic and language (including spelling) must be maintained at approximately the same level as well. Social and emotional maturity are considered as well as achievement in the skill subjects.

4. Is it possible to move from one group to another?

Yes. In the schools operating under the plan, pupils have actually been moved from the slow group to the average group, from the average group to the accelerated group, from the average group to the slow group and from the accelerated group to the average group. Careful screening and observation usually keep the number of such cases to a relatively small number. Most of such changes can also be done at the beginning or end of the term.

5. Can a pupil be in the superior group for one of the basic skill subjects, and in the average group in the other skill subjects?

No. Pupils in the superior group must be high achievers in all of the basic subjects.

6. How much acceleration is possible?

Most authorities do not feel that a child should be accelerated more than one year during his school career. Under the C.P. plan a superior child is able to complete the regular six-year elementary program in five years. The rest of his or her development will be done through enrichment.

7. How much deceleration is possible?

Slow-learning pupils usually will take seven years to complete the regular six-year program. Pupils who are likely to take much longer than this will probably be candidates for opportunity or special classes.

8. Is there an optimum class size under this plan?

Not specifically. However, in common with any good system of class organization it is important that the class size be within such limits as will permit the teacher to meet the individual needs of her pupils adequately. The plan probably works best with class sizes in the range of 25 - 30 pupils.

9. Are pupils ever failed?

Not as a general rule, but it has been found desirable to have certain very weak pupils repeat a unit of work along with the next year's assignment. To give every pupil credit for every fractional increment of progress would make the recording system unjustifiably complicated.

10. Aren't children unhappy when they realize they are in a slow group?

In a sense, there is really no "slow group". All the pupils in one group are doing the same work at the same pace, so a child doesn't feel "slower" than the rest of his group.

C. Curriculum

1. What are the actual units of work?

Committees of teachers, in cooperation with the supervisory staff, have subdivided the authorized programs in arithmetic, reading and spelling for each of the first five grades into convenient units of work, with suggested dates for completion. There are three units at each grade level. The suggested content and treatment of each unit to the end of Grade 3 is indicated in the Curriculum section of this manual.

2. What constitutes a year's work?

For the average pupil three units per year. For the superior pupil four units. For the slower pupil at least two units.

3. How do you know when a child is ready to move to another unit of work?

From experience and by reference to the suggested requirements for each unit as contained in this manual and through the use of teacher-made tests and such standardized tests as are available.

4. What is the most important curriculum problem in the program?

The Continuous Progress Plan must not be regarded as just a plan to facilitate the progress of differing ability groups through the same work - only at different rates. A much greater concern is to see that the work is actually differentiated according to their needs. This is our most urgent problem. Teachers are making commendable progress in this direction. Numerous suggestions along this line are contained in this manual but much more work needs to be done before the problem is solved.

5. What help is available for teaching the slow learners?

Suggestions are included in the Curriculum section of this manual. Other sources include the Teachers' Professional Library in the Administration Building, the teacher's own resources and various remedial and teaching aids which are supplied by the Board or can be secured from various educational publishers.

6. How can the program be enriched for the brighter pupils?

The same sources as those mentioned in answer to the preceding question will apply here but a great deal more research and experimentation will be needed before the best kind of program for bright pupils is achieved.

7. How will enterprise work be affected?

There is no need to use any different procedures than those used now. One of the merits of the enterprise method lies in its flexibility and in the opportunities it presents for differing assignments or contributions according to ability. The teacher will plan the participation of the different groups in her charge with this in mind.

8. Does the accelerated pupil "skip" some of the work in the other subjects such as science and social studies?

There is a danger here if precautions are not taken. A stimulating program of enrichment is the best protection against it.

9. Is attention to other subjects, including the cultural subjects, given less emphasis under the Continuous Progress Plan?

No. All subjects will continue to receive the same amount of attention and emphasis that they have always received.

D. Teachers

1. Will the plan be more challenging to teachers than the traditional grade system?

Yes. Teachers have to know their pupils much more intimately if they are to provide them with appropriate instruction and guide them successfully to the determined goals. More care is required in organizing their time and their plans to the best advantage.

2. Would an inexperienced teacher have more difficulty under this plan?

It would depend on the amount and kind of training received as well as the ability and attitude of the teacher. In one respect it would be easier. Getting to know their classes and organizing them into different ability groups has always been a big problem to new teachers. Furthermore, it often involves several reorganizations before the best arrangement is finally discovered. Under the Continuous Progress plan much of class organization and planning has been completed beforehand by the principal with the cooperation of experienced teachers. As a result, the inexperienced teacher has one of her first major problems solved for her so that she can devote more attention to her other problems.

3. In what ways would new teachers be oriented to the system?

New teachers would be oriented in the following ways:

- (1) Part of the fall Institute could be devoted to acquainting new teachers with the details of the plan.
- (2) Part of the In-Service Meetings conducted by the supervisors.
- (3) Staff meetings in the individual schools.
- (4) The Continuous Progress Manual and supplementary memos.
- (5) Individual consultations with principal, supervisors and consultants.

4. What qualities are looked for in hiring new teachers with respect to the plan?

The same qualities we look for under any modern plan of school organization. Among these would be included:

- (1) Good ability in classroom organization and management.
- (2) Evidence of flexibility, adaptability and open-mindedness.
- (3) Willingness to work hard, energetic.
- (4) A genuine interest in individual children.

5. Does the C.P. plan raise any problems with respect to the selection of teachers for the different kinds of groups?

There have been surprisingly few instances of teachers who have shown reluctance to take a particular room or grouping of pupils. One reason for this may be that the plan is so organized that each room has a group of relatively capable pupils in it. Nevertheless, the problem of selecting the best type of teacher for each type of class is an important one. Fortunately, some teachers prefer working with the brighter pupils while others get more satisfaction out of helping slower pupils. Where such preferences exist, principals are usually glad to take advantage of them.

6. What has been the reaction of teachers working under the plan?

A majority have been enthusiastic about the plan. While admitting it has involved a little more careful planning on their part, they feel that they are more than repaid in the satisfaction they have received from watching their pupils progress.

7. What are the implications of the plan for teacher training?

The implications, which would also apply to our own in-service program, would include the following:

- (1) More emphasis on the study of individual differences
- (2) More attention to the teaching of gifted and slow learners
- (3) More emphasis on administration and interpretation of tests
- (4) Practice teaching opportunities in schools where the plan is in operation
- (5) More attention to classroom management and planning

8. Do all the pupils classed as "average" cover the same amount of work at the same rate?

No. The children in the "high-average" group can proceed more rapidly than the "low-average" group, so they should read more widely and extend their reading 'skills' as far as possible.

9. Should a different enterprise be carried out with each group?

No. Careful planning of activities is necessary to adapt the one enterprise to differing levels of ability.

E. Parents

1. How is pupil progress reported to parents ?

Through the regular report card with such modifications as are described in this manual on pages 15 and 16, and supplemented with parent-teacher interviews whenever possible. Teachers will find that personal interviews will lead to better understanding and cooperation in connection with extreme cases. They are also helpful with parents of children in the fast and slow learning groups.

2. Should a parent be aware of the child's classification ?

There is no need for secrecy. The success of the plan is based upon mutual understanding and cooperation. If the child is working at his optimum capacity, is happy and is progressing favourably, the parent should realize that this is all that the school can do.

3. What can be done if the parent is not happy with the child's classification ?

This is another example of the importance of good home and school relations and the need for maintaining a clear understanding of what the school is trying to do for each child. A large majority of the parents are enthusiastic about the plan. Even those who may be a little disappointed about having their children placed in the slow learning group still prefer this to the alternative under the traditional plan of "failure" and repetition of the grade. A patient and sympathetic review of the child's records with the parent will usually solve most problems of this nature.

4. Should slow pupils be given optimistic gradings on their reports to encourage them ?

This has always been a hard question to answer. The difficulty can be evaded in part by the use of parent-teacher interviews, special notes or modifying the remarks on the report card. In the long run realistic ratings are probably the best. Anything else only increases the difficulty later.

5. What should be done if a pupil in a Superior group shows evidence of being under strain ?

An investigation should be made to determine the cause. If it is shown to be due to the difficulty of keeping up with the group the child should be withdrawn and placed with a slower-moving group. It must be impressed on parents and teachers at all times, that the welfare of the child is our primary concern. Nor is it ever desirable to curtail a child's normal outside activities just to maintain him in a particular group.

F. Administration and Supervision

1. What effect will the operation of the plan have upon the responsibilities of the principal?

It will increase them. Principals will have the responsibility of insuring that the teachers understand the purposes of the plan and that the classes are properly organized for the most effective instruction. Classes will have to be visited regularly to check progress toward planned goals.

2. Are there any major differences in organization between small schools and large schools?

No. Principals of smaller schools will have more difficulty keeping the number of different groups in each room within practical limits.

3. How are transfers handled?

- (a) Those coming into the system

Much as we do now. Through observation and tests the pupils' achievement level is determined and he is placed with a group which is working at about the same level.

- (b) Those withdrawing

A transfer form with a transcript of marks and relevant information is sent to the new school. If it is a school within the system a telephone call by the last teacher or the principal is made to supplement this information.

TOPICS FOR CONTINUING STUDY

Many of the findings which arose out of the research done by Mr. Cameron Ritchie in connection with his "Survey of Selected Nongraded Elementary School Programs in Canada and United States" have a direct bearing on the plan we are developing in the Edmonton Public Schools. The Continuous Progress Plan is not perfect and there still remain many problems to be solved. As principals and teachers work with the plan it is expected that solutions for most of the problems will be found and improvements will be continually introduced. To those who are interested in helping to improve the program the following recommendations¹ from Mr. Ritchie's thesis will be an excellent guide for further study.

1. That a comparative study of pupil achievement and social-personal development in nongraded and graded programs be undertaken in an effort to assess the relative strengths and weakness of nongraded or modified grade programs.
2. That existing selection and classification policies and practices be re-examined with a view to clarifying the bases for selection and classification decisions and insuring the most effective placement for each child.
3. That the scope of nongrade programs be broadened in an effort to provide for continuous progress in all aspects of a child's development.
4. That attention be given to the development of differentiated curricula, and special methods and materials designed to facilitate individualized instruction so that the educational needs of all children may be more effectively met.
5. That school workers responsible for the pre-service and in-service education of teachers develop programs to help teachers better assess and meet the individualized instructional needs of their pupils with a view to enriching the educational experience of each child.
8. That current promotion policies and practices be further analyzed with a view to clarifying the bases and timing of promotional or re-classification decisions.
9. That experimentation with various methods of pupil grouping be undertaken in an effort to ascertain their relative merits, thereby improving the grouping procedures presently employed.
10. That an attempt be made to minimize and standardize the record-keeping required of teachers so that they may devote an increasing proportion of their time and energy to instructional tasks.

¹ Reprinted with permission from Nongraded Elementary School Programs by R. Cameron Ritchie, Principal, Fulton Place School, Edmonton in collaboration with Walter H. Worth, Faculty of Education, University of Alberta, Alberta Journal of Educational Research Vol. VI, No. 3.

SCHOOLS OPERATING UNDER THE CONTINUOUS PROGRESS PLAN 1960

The principals and teachers of the following schools have had experience with the Continuous Progress Plan. They will welcome requests for assistance or information from all schools which are just introducing the plan or are intending to do so in the near future. Help is always available from members of the supervisory and consultant staff of the Department of Elementary Education.

<u>SCHOOL</u>	<u>PRINCIPAL</u>
Alex Taylor	W.E. Lambert
Belgravia	O.J. Doney
Capilano	E.S. Gish
Coronation	R.A. Ramsay
Crestwood	R.S. Whyte
Delton	J. Kulak
Donnan	R.R. Fisk
Dovercourt	W.H. Evans
Fulton Place	R.C. Ritchie
Glenora	A.R. Penny
Gold Bar	N.E. Loughheed
Holyrood	G.K. Brady
Inglewood	J.N. McCallum
King Edward	H.C. Thompson
Lauderdale	D.P. Green
McKernan	G.L. Davies
Oliver	L. Nichols
Parkallen	J. L. Ellingson
Parkview	L.M. Campbell
Queen Alexandra	A.W. Frost
Rutherford	M.L. Hayes
Windsor Park	H.J.M. Ross

APPENDIX B

ONE COPY OF LEVEL FOUR OF
COOPERATIVE SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS
IN MATHEMATICS, READING, SCIENCE, AND WRITING

Cooperative

*Sequential
Tests of
Educational
Progress*

Mathematics



4a

General Directions

This is a test of some of the understandings, skills, and abilities you have been developing ever since you first entered school. You should take the test in the same way that you would work on any new and interesting assignment. Here are a few suggestions which will help you to earn your best score:

1. Make sure you understand the test directions before you begin working. You may ask questions about any part of the directions you do not understand.
2. You will make your best score by answering *every* question because your score is the number of correct answers you mark. Therefore, you should work carefully but not spend too much time on any one question. If a question seems to be too difficult, make the most careful guess you can, rather than waste time puzzling over it.
3. If you finish before time is called, go back and spend more time on those questions about which you were most doubtful.

DIRECTIONS FOR PART ONE

Each of the questions or incomplete statements in this test is followed by four suggested answers. You are to decide which one of these answers you should choose.

You must mark all of your answers on the separate answer sheet you have been given; this test booklet should not be marked in any way. You must mark your answer sheet by blackening the space having the same letter as the answer you have chosen. For example:

- O** Which one of the following is an animal?
A Bed
B Dog
C Chair
D Box

Since a dog is an animal, you should choose the answer lettered **B**. On your answer sheet, you would first find the row of spaces numbered the same as the question—in the example above, it is **O**. Then you would blacken the space in this row which has the same letter as the answer you have chosen. See how the example has been marked on your answer sheet.

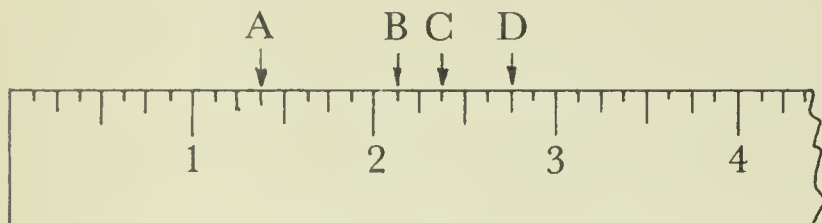
Make your answer marks heavy and black. Mark only one answer for each question. If you change your mind about an answer, be sure to erase the first mark completely.

Do not turn this page until you are told to do so.

PART ONE

Joe and Ted have model railroads. They spend much of their spare time working on these railroads.

- 1 Joe used his ruler to measure a baggage car $2\frac{3}{8}$ inches wide. What letter has an arrow pointing to $2\frac{3}{8}$ inches on the ruler pictured below?

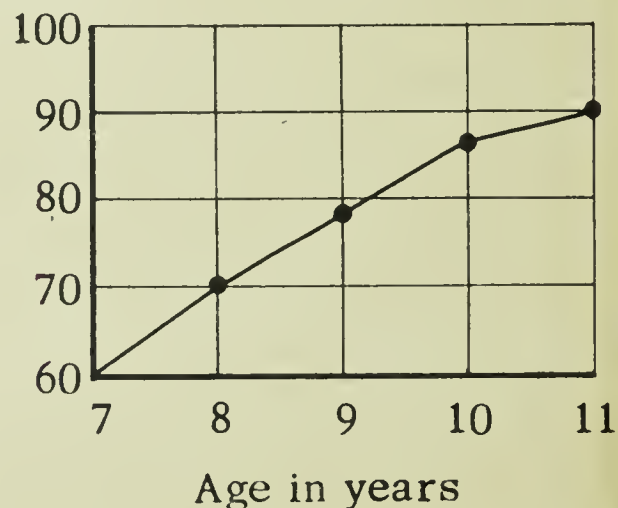


- A A
B B
C C
D D
- 2 Ted bought some material to make trees and bushes to put along his model railroad. He bought a sponge for 25 cents, glue for 15 cents, wire for 19 cents, and paint for 98 cents. How much did these things cost altogether?
- E \$1.37
F \$1.45
G \$1.47
H \$1.57
- 3 Joe built a bench to hold his railroad. He cut 3 pieces of lumber, each 3 feet 4 inches long, from a piece of lumber 12 feet long. How long was the piece of lumber that was left?
- A 1 foot 8 inches
B 2 feet
C 5 feet 8 inches
D 10 feet

David likes to keep a record of his weight and height. He measures his weight and height each year on his birthday.

- 4 David and his dog Tippy together weigh 103 pounds. David alone weighs 77 pounds. To find Tippy's weight, David should
- E add 103 to 77
F subtract 103 from 77
G divide 103 by 77
H subtract 77 from 103
- 5 David is 42 inches tall. This is the same as
- A 3 feet
B 3 feet 6 inches
C 4 feet
D 4 feet 2 inches
- 6 Ellen was 2' 8" tall when David was 3' 4". At that time, David was how many inches taller than Ellen?
- E 4
F 6
G 8
H 16
- 7 David made the graph below to show how much he weighed on each birthday.

Pounds



He made the LEAST gain between which two birthdays?

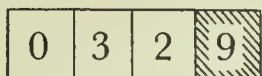
- A 7 and 8
B 8 and 9
C 9 and 10
D 10 and 11

In Tom's school, some children ride bicycles to school, some walk to school, and some ride on the school bus.

- 8 Tom lives $2\frac{1}{2}$ miles from school so he eats lunch at school. How many miles does he travel each day going to and from school?

E 4
F $4\frac{1}{2}$
G 5
H $5\frac{1}{2}$

- 9 The mileage is 32.9 on the cyclometer on Bill's bicycle.



When he rides another $\frac{1}{10}$ of a mile, the cyclometer should read

A 32.0
B 32.8
C 33.0
D 33.9

- 10 The school district paid sixty thousand dollars for new buses. How would you write this amount?

E \$600
F \$6,000
G \$60,000
H \$600,000

- 11 Two children from each class in the school are members of the safety patrol. To find how many patrol members there are altogether, what other fact would you need to know?

A The number of children in the school
B The number of classes in the school
C The number of children in each class
D The number of street crossings

- 12 Mary found that in one year she rode the city bus on 98 days and paid a total of \$14.70 for bus fares. How would you find how much she paid each day for her bus fare?

E Add 98 to \$14.70
F Divide \$14.70 by 98
G Multiply \$14.70 by 98
H Divide 989 by \$14.70

Most children like to play games and keep score. In some games you may win and lose points.

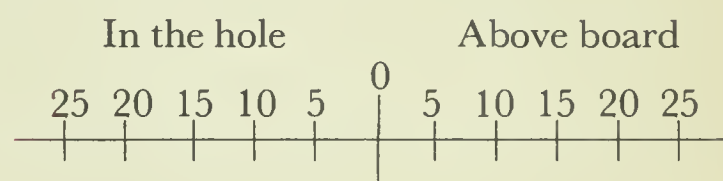
- 13 In the game of hide-and-go-seek, the one who is "it" counts by 5's. If John is "it" and counts "5, 10, 15," what number should he say next?

A 16
B 20
C 25
D 30

- 14 In ringtoss, each player gets three rings to toss. Rings on the peg win 25 points each. Rings off the peg lose 10 points each. David has two on and one off. How many points does he get?

E 5
F 15
G 35
H 40

- 15 Jane is playing Rook. She keeps her score on a board like this one.



She was 10 points "in the hole." Then she made 25 points. What is her score now?

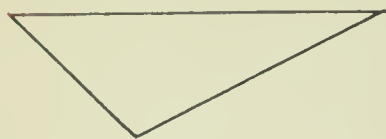
A 15
B 25
C 35
D You can't tell.

- 16 Ellen had 20 marbles. There were 15 agate marbles and 5 clay marbles. What part of the total number of marbles were clay?

E $\frac{1}{3}$
F $\frac{1}{4}$
G $\frac{1}{5}$
H $\frac{3}{4}$

The Kents are getting things ready for Christmas.

- 17** The children are making Christmas ornaments. Four of the ornaments look like this:



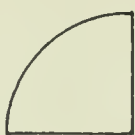
A



B



C

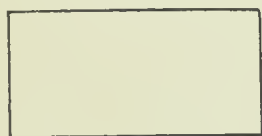


D

Which ornament is a triangle?

- A** A
- B** B
- C** C
- D** D

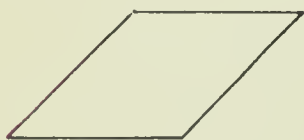
- 18** John Kent wants to paste square labels on Christmas presents. Which of the following is a square?



E



F



G



H

- E** E
- F** F
- G** G
- H** H

- 19** The Kent living room is 10 feet 6 inches high. Mr. Kent bought a Christmas tree that is 13 feet high. At least how much should Mr. Kent cut off the tree in order to allow 6 inches between the top of the tree and the ceiling?

- A** 2 feet
- B** 2 feet 4 inches
- C** 2 feet 6 inches
- D** 3 feet

- 20** Mrs. Kent will roast a turkey for Christmas. She will roast the turkey 20 minutes for each pound it weighs. Which of the following statements is true?

- E** The lighter the turkey, the longer you roast it.
- F** The lighter the turkey, the less you roast it.
- G** The heavier the turkey, the less you roast it.
- H** All turkeys are roasted the same length of time.

- 21** Betty Kent baked a cake for Christmas dinner. Which of these statements about cutting the cake into equal pieces is true?

- A** The smaller each piece, the greater the number of pieces.
- B** The smaller each piece, the smaller the number of pieces.
- C** The larger each piece, the greater the number of pieces.
- D** The number of pieces has nothing to do with the size of each piece.

Each class in the Roseville school spends two weeks at Camp Lisk sometime during the school year.

2 Each pupil who goes to the school camp must pay \$8.00 per week. Also, the round-trip bus fare is \$1.50. What was the LEAST amount of money Sue needed for two weeks at camp?

- E \$9.50
- F \$16.00
- G \$17.50
- H \$19.00

3 There are 29 pupils in Sam's class. The camp has room for 152 pupils at one time. About how many classes the same size as Sam's can be at camp at the same time?

- A 5
- B 6
- C 7
- D 123

24 The boys in Cabin 5 want to measure the length of some fallen trees. Which of the following should the boys use if they want to measure each tree in the FEWEST number of measures?

- E Yardstick
- F 6-inch ruler
- G 12-inch ruler
- H 18-inch ruler

25 One evening Mary called her mother from a pay telephone in the camp office. The telephone has slots for quarters, dimes, and nickels. The operator said, "Sixty-five cents, please." Which set of coins should Mary put in the slots?

- A 4 dimes and 6 nickels
- B 5 dimes and 4 nickels
- C 1 quarter, 3 dimes, and 1 nickel
- D 2 quarters, 1 dime, and 1 nickel



Stop. If you finish before time is called, check your work on this part. Do not go on to Part Two until you are told to do so.

DIRECTIONS FOR PART TWO

Part Two contains the same kind of material as Part One. Mark your answers in the same way.

Do not turn this page until you are told to do so.

PART TWO

Janet has been a Brownie since she was seven years old, and she will soon be a Girl Scout. A Brownie learns to do many useful things.

- 1 For one of her Brownie projects, Janet made a square potholder with each side 10 inches long. About how many inches of tape would she need to go around the edges?

A 10 B 20 C 40 D 100

- 2 Janet made a pan of fudge for a Brownie sale. She cut the candy into thirds and then cut one of the thirds into halves. Which diagram shows what she did?



- 3 When Janet's Brownie group formed 5 committees of 3 girls each in order to sell boxes of cookies, each girl sold 6 boxes. Janet said, "To find the total number of boxes sold, multiply 5 by 3 by 6." Mary said, "Multiply 6 by 5 by 3." Nancy said, "Multiply 3 by 6 by 5." Who was right?

A Only Janet
B Only Nancy
C Only Janet and Nancy
D Janet, Mary, and Nancy

- 4 One day the Brownies went on a picnic to a lake 3 miles away. Janet and Sue missed the bus and started walking along the road to the lake. When they had walked $1\frac{1}{4}$ miles, the bus returned and took them the rest of the way. How many miles did they ride on the bus?

E $\frac{3}{4}$
F $1\frac{3}{4}$
G $2\frac{1}{4}$
H $4\frac{1}{4}$

Jim's class at school was talking about our of speed.

- 5 Jim said that in 1953 the speed record for a certain airplane was 750 miles per hour. About how many hours would it take that airplane to go the 2250 miles from Pittsburgh to Los Angeles at this speed?

A $\frac{1}{3}$
B 3
C 30
D 3,000

- 6 Sarah said that sound travels about 5 times as fast in water as in air. If you knew the speed of sound in water, how would you find the speed of sound in air?

E Divide by 5.
F Multiply by 5.
G Add 5.
H Subtract 5.

- 7 Joe found out that fast ships can go about 35 sea miles per hour. A sea mile is about 6080 feet. A land mile is 5280 feet. When Joe changed the 35 sea miles per hour to land miles per hour, his answer should have been

A less than 35
B 35
C more than 35 but less than 350
D 350

Mr. Allen's geography class was talking about the use of arithmetic in population problems.

- 8 Martha said she could find the number of children in the school from a chart in the school office. Each star on the chart stood for 25 pupils. To find the total number of pupils, Martha should count the number of stars and

E subtract 25
F add 25
G divide by 25
H multiply by 25

- 9 Jim said a New York newspaper article gave the world's population as "two and a half billion." Written in numbers, this is

A $2\frac{1}{2},000,000$
B 2,500,000
C 2,500,000,000
D 2,500,000,000,000

- 10 Bill said that "population per square mile" is often used to compare populations of different states. It is found by dividing the number of people in a state by the number of square miles in the state. Montana's population per square mile was once 4. Which statement is true?

E There were 4 people living in every square mile of Montana.
F There was no square mile in Montana in which more than 4 people lived.
G There was no square mile in Montana in which less than 4 people lived.
H There was an average of 4 people per square mile in Montana.

- 11 Susan told the class that in 1900 the population of the United States was about $\frac{1}{2}$ as much as in 1950. She said that the area of the United States did not change. The class can say that the number of people per square mile in 1950 was about

A $\frac{1}{2}$ as large as in 1900
B the same as in 1900
C 2 times as large as in 1900
D 25 times as large as in 1900

A Girl Scout troop decided to study about the sun, moon, stars, and planets.

- 12 Sue reported to her scout troop one night that there are four planets larger than the earth and four smaller. If the earth has a diameter of 7900 miles, which one of the following planets is smaller than the earth? (Their diameters are given in miles.)

E Venus — 7600
F Uranus — 30,800
G Saturn — 72,400
H Jupiter — 86,700

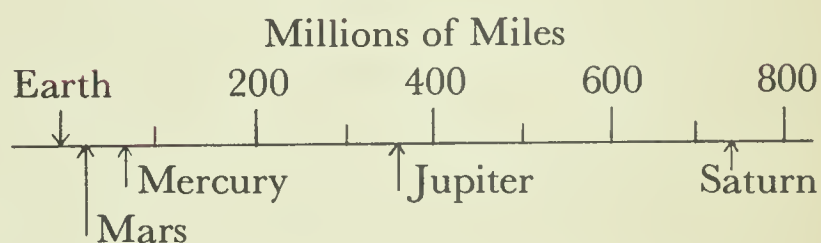
- 13 Jane told the troop that the closest the earth came to the sun was 91,000,000 miles. How should she say this number?

A ninety-one thousand
B nine million one hundred thousand
C ninety-one million
D ninety-one billion

- 14 The Girl Scouts shivered when they learned that the temperature on the moon at night was 200 degrees below zero. Most people keep their houses about 70 degrees above zero. How many degrees difference is there between these two temperatures?

E 70° **F** 130° **G** 200° **H** 270°

- 15 Alice made this chart for the scouts in order to show distances of some other planets from the earth.



Which of the following is NOT true?

- A** Saturn is more than 700 million miles from Earth.
B All of these planets are millions of miles from Earth.
C Mercury is more than 100 million miles from Earth.
D Mars is closer to Earth than Jupiter.

A class noticed the Roman numerals MDCCCLXXVIII on the school cornerstone. After learning that this number stands for 1878, the class was interested in different ways of writing numbers and in different money systems.

- 16** In the Cathedral Latin School, one of the rooms is numbered XVI. What does XVI mean?
- E** 10 hundreds + 5 tens + 1
 - F** $10 + 5 + 1$
 - G** $10 + 4$
 - H** 151
- 17** On the blackboard one morning Joe read the warning: A MISPLACED DECIMAL POINT MEANS A LARGE MISTAKE! How does a misplaced decimal point change a number?
- A** One place too far to the left subtracts 1 from the number.
 - B** One place too far to the right subtracts 1 from the number.
 - C** One place too far to the right makes the number 10 times too large.
 - D** One place too far to the left makes the number one-half as large.
- 18** In Sweden, kronor are used instead of pennies. If 1 krona is worth 19.37 cents in the United States, what would 1000 kronor be worth?
- E** 1,937 cents
 - F** \$1.94
 - G** \$19.37
 - H** \$193.70
-

Jane wanted to fix up her room. She planned to make curtains, paint her room, make pillow covers, and buy a new rug.

- 19** Jane's bedroom is 12 feet long and 10 feet wide. Which of the following rug sizes could be used in her room?
- A** 8 feet by 15 feet
 - B** 9 feet by 12 feet
 - C** 11 feet by 11 feet
 - D** 12 feet by 12 feet
- 20** Jane can spend up to \$20.00 for curtains. If she spent \$1.95 per yard, *about* how many yards of curtain material could she buy?
- E** 1
 - F** 10
 - G** 20
 - H** 40
- 21** Jane wanted to have curtains 47 inches in length when finished. If 4 extra inches of cloth were used for a hem at the bottom and 3 extra inches for a hem at the top, how many inches of material were needed for each curtain?
- A** 35
 - B** 40
 - C** 54
 - D** 66
-

The Lane family drove from their home in Waterloo, Iowa, to visit the Black Hills in South Dakota.

2 The Lanes drove on Route 218 for 104 miles and then took Route 16 the rest of the way. They drove 663 miles in all. How many miles did they drive on Route 16?

- E 325
- F 559
- G 767
- H 1001

3 The mileage reading was 8735.2 at the start of the trip. Mr. Lane said they would cross the state line in about 90 miles. What should the reading be then?

- A 8645.2
- B 8736.1
- C 8744.2
- D 8825.2

4 When the Lanes stopped to buy gasoline, the price listed was $28\frac{8}{10}$ cents. This included a federal tax of $1\frac{1}{2}$ cents and a state tax of 5 cents. What would gasoline have cost without these taxes?

- E $22\frac{3}{10}$
- F $23\frac{8}{10}$
- G $27\frac{3}{10}$
- H $35\frac{3}{10}$

5 The Lanes saw Harney Peak, 7242 feet high. About how high is it in miles? (1 mile = 5280 feet.)

- A 1
- B $1\frac{1}{3}$
- C $1\frac{2}{3}$
- D 2

If you finish before time is called, you may check your work on either Part One or Part Two.

Form **4** A

Catalog No. 364-01-1

Testing and Research Office
Department of Education

Cooperative

*Sequential
Tests of
Educational
Progress*

Reading

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General Directions

This is a test of some of the understandings, skills, and abilities you have been developing ever since you first entered school. You should take the test in the same way that you would work on any new and interesting assignment. Here are a few suggestions which will help you to earn your best score:

1. Make sure you understand the test directions before you begin working. You may ask questions about any part of the directions you do not understand.
2. You will make your best score by answering *every* question because your score is the number of correct answers you mark. Therefore, you should work carefully but not spend too much time on any one question. If a question seems to be too difficult, make the most careful guess you can, rather than waste time puzzling over it.
3. If you finish before time is called, go back and spend more time on those questions about which you were most doubtful.

DIRECTIONS FOR PART ONE

Each of the questions or incomplete statements in this test is followed by four suggested answers. You are to decide which one of these answers you should choose.

You must mark all of your answers on the separate answer sheet you have been given; this test booklet should not be marked in any way. You must mark your answer sheet by blackening the space having the same letter as the answer you have chosen. For example:

- O** Which one of the following is an animal?
A Bed
B Dog
C Chair
D Box

Since a dog is an animal, you should choose the answer lettered **B**. On your answer sheet, you would first find the row of spaces numbered the same as the question—in the example above, it is **O**. Then you would blacken the space in this row which has the same letter as the answer you have chosen. See how the example has been marked on your answer sheet.

Make your answer marks heavy and black. Mark only one answer for each question. If you change your mind about an answer, be sure to erase the first mark completely.

Do not turn this page until you are told to do so.

PART ONE

- (1) It was on a trip with the wagon train that William first saw Indians on the warpath. Over the hills they came, their feathers waving in the wind. They held their tomahawks over their heads and gave great yells as they rode. They rode in circles around the wagons—each circle growing smaller and bringing the Indians closer to their prey.
- (2) The white men aimed and fired. They drove the Indians away, but knew that the red men would return. The oxen were hitched quickly to the wagons. Whips cracked! Wheels began to move! The great train was on its way.
- (3) William ran behind the wagon with some of the men. He became very tired, and his feet felt so heavy he could hardly make them carry him forward. Try as he would to keep up, he got farther and farther behind.
- (4) Suddenly he heard a noise, and looking up, he saw the cruel face of an Indian. William was frightened, but he remembered what he should do. He raised his gun and fired. A loud whoop rang out as the Indian came tumbling down. The men of the wagon train heard the shot and the whoop. They came running to help William, but the boy needed no help. He had known how to help himself.

1 In this story the writer wants to show that

- A the Indians were brave
- B William could help himself
- C William could not walk fast
- D the men helped William

2 The writer thought that

- E Indians were poor riders
- F Indians were braver than white men
- G the Indians were afraid of William
- H Indians were dangerous

3 How did the story say William felt when he met the Indian alone?

- A Frightened
- B Angry
- C Happy
- D Sorry

4 Why does this story need the third paragraph?

- E So you will know that William was brave
- F To show how fast the train was moving
- G So you will know why William had to shoot the Indian himself
- H To show you that the men were running away from the Indians

5 This is a good story because

- A it teaches you all about Indians
- B it teaches you how to shoot Indians
- C it shows how frightened the white men were
- D it is very exciting

THE HENS

The night was coming very fast;
It reached the gate as I ran past.

The pigeons had gone to the tower of the church,

And all the hens were on their perch,

Up in the barn, and I thought I heard
A piece of a little purring word.

I stopped inside, waiting and staying,
To try to hear what the hens were saying.

They were asking something, that was plain
Asking it over and over again.

One of them moved and turned around,
Her feathers made a ruffled sound,

A ruffled sound, like a bushful of birds,
As she said her little asking words.

She pushed her head close into her wing.
But nobody answered anything.

6 What sound that hens make does the poem tell you about?

- E Ruffling
- F Cackling
- G Crowing
- H Scratching

7 What does the poet make believe the hens are doing?

- A Going to sleep
- B Asking little questions
- C Moving and turning around
- D Sitting on their perches

8 Where did the pigeons sleep?

- E In the barn
- F With the hens
- G In the church tower
- H On their perches

9 At the end of the poem, the poet is

- A in the church
- B remembering the gate
- C leaving the tower of the church
- D looking at just one hen

10 The person in the poem will never

- E know what the hen really meant
- F visit the hens again
- G run past the gate
- H stop in the barn again

LET'S PLAY INDOOR HORSESHOES

This exciting indoor game is played somewhat like horseshoes. Instead of real horseshoes, however, you use two men's shoes and a supply of pop-bottle tops. Any number of people can play the game.

Borrow a pair of dad's old shoes and place them at one end of the room, side by side. The toes should be pointing away from the wall. Each player has two bottle tops which he should mark with his initials so he can be sure to recognize them.

Players take turns trying to pitch their two bottle tops into the shoes from a distance of about six feet. To make sure everyone stands the same distance away, you can place a small object on the rug to mark the spot where the player stands. After everyone has had a turn, here is how you score the game.

A bottle top inside a shoe is called a "ringer." It counts five points. A bottle top touching a shoe is called a "leaner" and counts three points. If there are no ringers or leaners, the

person whose bottle top is closest to a shoe gets one point. If his other bottle top is also closer to a shoe than any of his opponents' tops, he scores two points.

After the scores have been written down, players pick up their bottle tops and take turns pitching again. The first person to reach 21 is the winner.

11 When playing this game, you must first

- A choose up sides, then pitch
- B place the shoes, and mark the spot where the players stand
- C make everyone stand the same distance away
- D score the points after each player's turn

12 A player gets a score of two points if

- E both his tops are closer to a shoe than any other tops
- F he gets a ringer
- G he gets a leaner
- H one of his tops touches some other player's top

13 A "leaner" is

- A a player who leans over to pitch the bottle top
- B someone who is playing for the first time
- C a bottle top that leans against another top
- D a bottle top that touches a shoe

14 The writer of this story is trying to tell you how to

- E play a new game
- F play a game with horseshoes
- G win a game
- H beat the other fellow at horseshoes

15 The writer does NOT tell you

- A whether players take turns
- B how to score the game
- C what to do when there is a tie
- D where to place the shoes

(This is a letter written by a child to his pen pal in another part of the country. Pen pals are people who have never met each other, but who write letters to each other.)

Dear Pen Pal,

I have two little sisters. Kathy Ann is 5 years old and Myra is 1½.

We have a canary. His name is Chris. He is supposed to be a singer, but he doesn't sing pretty. But he is a cute pet. We leave his cage door open on the back porch some days and he flies around in the porch. Some days he comes into the kitchen and eats lettuce, celery leaves, turnip greens, and the leaves of Mother's flowers. He sometimes takes a bath in the dishpan and sometimes in the fish bowl with the two gold fish. One day while we were eating lunch he flew to the table and stood on the side of the bowl of potato salad. He usually lets Mother catch him when she wants to. He goes into his cage by himself at night.

Your friend,
Larry Arnold

- 16** What can you guess about mother wh she tries to catch Chris?
E She can never catch him.
F She always needs help from Larry.
G Sometimes she can't catch him.
H She can always catch him.
- 17** What was Larry doing when Chris sto on the salad bowl?
A Feeding the fish
B Eating lunch
C Feeding his younger sister
D Bathing Chris
- 18** How does the bird sleep in his cage night?
E On his perch
F On the bottom of the cage
G With his head under his wing
H The letter doesn't tell us.
- 19** The second paragraph in the letter mostly about
A the canary
B the goldfish
C the sisters
D pen pals
- 20** Why does Larry tell about the dishp and the fish bowl?
E They are things that are hard to ke clean.
F They are funny places for a canary be.
G Chris sang only in them.
H Chris always ate in them.

What a bustling place is a modern railroad yard with its scores of tracks and switches and hurrying workers! There are storage tracks for incoming freight, tracks for sorting freight, and tracks on which trains which are to go to other cities are made up. To us it looks like a hopeless puzzle as cars are moved backward and forward and from one track to another, but it is really an orderly job, carefully planned by the yardmaster and the switchmen. The "empties," as the empty freight cars are called, are put in one place. The loaded cars are sorted according to the place they are going and whether they are to travel by fast or slow freight. Hour after hour the work goes on until all the cars are on the right tracks; meanwhile more trains are arriving to keep the process going. Trains come rumbling into some yards at the rate of one every ten minutes, so there is no time to rest. If the work in the yards did not go on, soon every track would be jammed so full that nothing could move. Some trains must pull out so that the others can pull

There are also the problems of getting borrowed cars returned to their own railroads and loading them whenever it is possible. There must be no "empties" standing around on their own tracks, for empty freight cars mean money lost. Surely a yardmaster must have a very wise head, and capable men to help him, to keep everything running smoothly.

- 21** At the beginning of the story, the writer tells us
- A** that trains make a lot of noise
 - B** mostly about empty cars
 - C** that a railroad yard is a busy place
 - D** that empty cars mean lost money
- 22** Trains are allowed to enter the yard
- E** only after other cars are on the right track
 - F** all the time
 - G** when the men begin work in the morning
 - H** every half hour
- 23** Cars are sorted according to
- A** size
 - B** whether the freight will spoil
 - C** where they are going
 - D** what time they came into the yard
- 24** One title for this article might be "Freight Cars." A better title would be
- E** "The Yardmaster's Job"
 - F** "Where Freight Cars Go"
 - G** "The Problem of Empty Cars"
 - H** "How Freight Cars Are Stored"
- 25** When the writer says "hour after hour the work goes on" (line 15), he wants us to think that
- A** one car moves every hour
 - B** the switchmen wait a long time for the trains
 - C** most of the work is done at night
 - D** men in the yard work all the time
-

A SAFETY PLAY

1 DOCTOR: Good morning, Nurse. Have any children come to our school clinic today?

NURSE: None so far, Doctor.

DOCTOR: No colds, no sniffles,

5 No measles, no mumps?

No scratches, no bruises,

No scrapes, no bumps?

NURSE (*shaking her head*): But, with all the careless children we have in this school, we shall

10 probably have some accident cases to patch up before the day is over.

DOCTOR: Well, I'll be in my office if anyone needs me. (*goes out*)

GENE (*enters, left*): Oh dear, oh me!

15 NURSE: What happened to you?

GENE: I'm nothing but a mass of burns.

Both hands are red and sore.

I lit a match near some old trash

Down on the basement floor.

20 NURSE: Hereafter, never play with matches!

And always keep the basement cleared of trash. Go in to see the doctor, and he will fix you up. (*Gene goes out, right*)

CAROL (*comes in, left*): Oh, oh, this is dreadful!

25 NURSE: What happened to you?

CAROL: I slid upon a cake of soap

In the bathroom tub today,

And now I have so many hurts

That I can't work or play.

30 NURSE: After this, never leave soap in the tub or on the floor of a shower. Now go in to see the doctor, and he will fix you up. Then come back to see me.

(*Carol goes out, right*)

35 NURSE: They really are a sorry lot,

And all because each one forgot.

TOGETHER: We've given you these safety tips,

And hope you'll be the gainer.

If you'll just follow them at home,

40 Your life will be much saner.

This is the end of our play, friends.

We wish you joy and laughter.

We hope you'll keep the rules, and live

Happily ever after!

26 What happened to Gene in the play?

E He had burned his hands.

F He had fallen downstairs.

G He had fallen in the bathtub.

H He had hurt himself on the playground.

27 Why didn't the play tell what school it was or how old the children were?

A It does tell these things.

B It would give the school a bad name.

C You don't need to know these things to understand the play.

D The play was not in a school.

28 The writer of this play wants most for you to

E have a nurse and doctor in your school.

F be more careful

G go to the doctor when you are hurt

H make up more safety rules

29 In lines 8 and 14, what do the words between these marks () tell you?

A What the person is doing

B What the person said

C Who is talking

D None of the above

30 The play makes you think that Carol and Gene

E were very nice children

F were brother and sister

G were very young children

H were not very careful

HOW A CAMERA OPERATES

A camera works very much like the human eye. The light from an object—a tree for example—first enters the human eye through a tiny lens in front of the eye. This lens focuses an image of the tree on the back of the eye, where a bundle of little nerves carries the image to the brain. A camera also has a lens in front. If the camera is pointed at a tree, the lens will focus an image of the tree on the back of the camera where the film is placed. When the film is developed and printed, the finished product is called a photograph. The word “photograph” comes from the Greek *photos* (a form of the word meaning “light”) and *graphe* meaning “writing”). Photography is exactly that—writing (or drawing) with light.

Here is a simple experiment that will show you clearly how a camera operates. Take off the back of your camera. Then use a rubber band to hold a piece of tissue paper across the open back of your camera. Close the shutter, throw a dark cloth over your head, open the shutter, then point the lens of the camera at a well-lit scene. The light reflected from the scene passes through the hole and throws a picture of the scene on the tissue paper. The rays of light cross as they pass through the hole. This makes the image upside down when it strikes the paper. The image in the human eye is formed the same way.

- 31 The best title for this selection would be
 - A “The Human Eye is a Camera”
 - B “How a Camera Operates” (as it is now)
 - C “How to Build a Simple Camera”
 - D “Experimental Photography”
- 32 When does the writer compare the eye and the camera?
 - E While he is describing the experiment
 - F Throughout the article
 - G Mostly toward the end of the article
 - H At the beginning and at the end of the article
- 33 The article says that before putting the tissue paper on the camera, one should
 - A point the camera at a scene
 - B open the shutter
 - C take off the back
 - D close the shutter
- 34 The writer tells us the meaning of the Greek words *photos* and *graphe* because
 - E he wants us to be interested in Greek
 - F they show that the eye is really a camera
 - G they make the experiment easier to do
 - H they help explain how pictures are taken
- 35 Which of the following is NOT explained in the article?
 - A How to do an experiment with a camera
 - B Why a dark cloth is necessary
 - C How the camera and the eye are similar
 - D Why the image on the paper is upside-down



Stop. If you finish before time is called, check your work on this part. Do not go on to Part Two until you are told to do so.

DIRECTIONS FOR PART TWO

Part Two contains the same kind of material as Part One. Mark your answers in the same way.

Do not turn this page until you are told to do so.

PART TWO

Trees are big plants. They grow from seeds.

A tree has many parts. It has a trunk. The trunk is the biggest part of a tree.

A tree has branches. Some of the branches are big. Some of the branches are little.

A tree has leaves. In summer, tree leaves are green. In autumn, some leaves turn red and yellow.

Some tree leaves fall off in autumn. They fall off when the tree stops growing. The tree stops growing when it cannot get enough water.

We cannot see all of a tree. We cannot see the roots of a tree. The roots are under the ground.

A tree has many roots. It has almost as many roots as it has branches. The roots get water for the tree. They also get something from the soil with which the tree makes food. The water and food make the tree grow. The roots also keep the tree from blowing over.

Trees are beautiful. They help make school grounds and houses look pretty.

Trees make shade in the summer. They shade your house. They keep your house cool. They keep you cool, too.

- 1 This story is all about
 - A branches
 - B trees
 - C roots
 - D school grounds
- 2 We like trees because
 - E they are big
 - F they grow big and tall
 - G they have leaves
 - H they are beautiful
- 3 The parts of a tree are talked about in this order:
 - A leaves, branches, trunk, roots
 - B trunk, branches, leaves, roots
 - C roots, trunk, branches, leaves
 - D branches, leaves, roots, trunk

- 4 In the last part of the story, we are told about
 - E how trees help us
 - F a tree in the forest
 - G a branch on a tree
 - H how trees lose leaves
- 5 This is a good story because it tells us
 - A about animals
 - B that we see the whole tree
 - C a lot about trees
 - D that trees are good food

Dear Bill,

It was fun to be on the farm. Yesterday morning, Jack and I watched Aunt Mary make butter. She did not need to use all her cream to make butter. She sent most of the cream to the creamery.

I wish I were a farmer. I would take just a little cream for butter. Then I would use all the rest of the cream to make ice cream. Wouldn't that be fun?

I'm sorry you could not go to Jack's farm with me. I had the time of my life. Every day, Jack kept finding some new thing to do.

We rode Jack's horse. We worked around the barn. We fed the animals. We gave corn to the hogs in their pen. What a noise a hog can make! We gave hay to the horses and the sheep and the little lamb.

I came back to town yesterday. I must say good-bye for now. Write soon.

Your cousin,
Betty

- 6 In this letter, Betty is trying to tell
 - E how to make butter
 - F what she did at the farm
 - G what horses eat
 - H how much noise a hog makes
- 7 In the first part, Betty tells about
 - A how the creamery makes butter
 - B Betty and Jack making butter
 - C where cream comes from
 - D Aunt Mary making butter

Go on to the next page

- 8 Which of these things that Betty said tells best how she feels about living on a farm?
E We worked around the barn.
F I came back to town yesterday.
G I wish I were a farmer.
H We rode Jack's horse.
- 9 The letter is happy EXCEPT where Betty is
A saying Bill couldn't come
B telling about riding the horse
C having to say good-bye
D telling about the cream
- 10 Where does Betty live?
E In the mountains
F On a farm
G Near the ocean
H In a town

MY BROTHER, JOHN HENRY

I have such a wonderful brother.
 John Henry is his name.
 Whatever I want to play, he'll play;
 He likes just any old game.

If we decide on a game of ball,
 John Henry lends his bat;
 And if it's marbles, he'll lend those, too.
 John Henry's just like that.

Whenever I say, "Let's go to the creek
 And catch the tadpoles there,"
 He goes along and helps dam them in,
 Ready to do his share.

If I decide to sit and rest,
 Just watch the sun on the grass,
 He'll sit with me there and talk and talk,
 Helping the time to pass.

We tell each other exciting tales
 Of pirates bold at sea.
 It's my turn first. I talk a while;
 Then John tells tales to me.

Now whoever saw a boy like this,
 So good, with manners mild?
 No one has seen him. I made him up,
 For I am an only child.

- 11 John Henry and the poet seem to decide things
A at different times
B in different ways
C together, easily
D by fighting over them
- 12 John Henry will probably never
E give the poet any help in fishing
F lend the poet his bat
G fight with the poet
H lend the poet any marbles
- 13 John Henry likes
A ball playing best
B any game at all
C fishing best
D sitting best
- 14 The poet is trying to say that John Henry is
E a perfect playmate
F a dull person to be with
G a fellow who must have everything his own way
H a fellow who tattles
- 15 The poet tells you who John Henry *really* is in the
A first verse of the poem
B fourth verse of the poem
C fifth verse of the poem
D sixth verse of the poem
-

Everyone was talking at once and scrambling over everyone else, trying to find things. "Who did it?" they asked Miss Phillips.

"You did!"

"Oh, no, we didn't!" the children responded.

Miss Phillips nodded slowly and explained. "It's this way. You haven't done all these things at one time, but every one of you has done some of these things sometime, haven't you? Borrowed a pencil or book without permission, misplaced someone's wrap, mixed up someone's papers?"

The boys and girls looked thoughtful, for they, too, knew they had done these things.

They listened carefully as Miss Phillips went on: "You didn't notice when it was just one book or pencil. I wanted you to see what it would be like if everyone were careless all at once. After school I mixed up all your things to show what would happen if our room were like this all the time."

Everybody looked at everybody else. Finally David said, "We couldn't study."

And Jean added, "We wouldn't know where anything was."

"I wouldn't like it!" declared Ronald.

"Now you see why people have rules about property," Miss Phillips pointed out, "so perhaps we need a few rules in our class."

"I know!" called out Ricky. "Let other kids' things alone."

"Don't borrow without asking," said Jean.

And the school children decided never to have a mixed-up room again.

16 The children in the classroom

- E** listened carefully as Miss Phillips explained the mix-up
- F** were angry when they found out who had mixed up things
- G** never found out who had mixed up things
- H** didn't want to make any rules

17 What was the teacher trying to teach the children?

- A** To stay in their seats most of the time
- B** To be more careful about other person's things
- C** Not to borrow things from other children
- D** Not to mix up the room again after school

18 How does the writer tell us this story?

- E** By letting each person in the story tell his part
- F** By telling it himself
- G** By letting the teacher tell it
- H** By none of the above

19 How did the story of the mixed-up room end?

- A** The class talked about the mixed-up room.
- B** The children straightened out everything.
- C** The children told the teacher they were sorry.
- D** The class made some rules so that things wouldn't get mixed again

20 Which one of these rules did the children forget to make?

- E** Let other children's things alone.
- F** Don't borrow without asking.
- G** Return something when you borrow it
- H** They remembered to make all the above rules.

THE RAILROAD GHOST

It was a spooky sort of night. As the train moved along, fog began to close in around it. It was just the sort of night one would expect to meet a ghost.

Now, running a train isn't easy any time, but on this particular evening it was really hard work. Even with the powerful headlight stabbing the darkness ahead, the engineer had to strain his eyes to see the track.

Suddenly, dead ahead, a figure in a black cloak stood in the middle of the tracks waving its arms frantically! The engineer brought the train to a screeching halt. The trainmen jumped out and called. But there was no sign of the mysterious figure who had flagged their train. Even the engineer was almost convinced that it had been somebody's poor idea of a joke. Just to play safe, he swung down from his cab and walked up the tracks. Suddenly, his face grew pale and his heart beat wildly. There, at the head of the stopped train, he found a washed-out bridge.

Not until the train reached London safely was the strange mystery solved. The engineer found a huge dead moth lying at the base of the locomotive head lamp.

Then he did a strange thing. He wet the wings of the moth and carefully pasted it to the base of the head lamp. Then he climbed back to the cab of his engine and switched on the light.

"Ah!" he cried triumphantly. "I thought I was crazy!" For as the bright beam stabbed ahead into the darkness, there appeared once again the "ghost" the engineer had seen earlier. But now the "arms" weren't waving wildly. They were still.

In the first paragraph, the writer is trying to

- A** explain how the engineer feels
- B** give you a feeling for what is going to happen
- C** explain what a ghost is
- D** start you thinking about trains

22 This writer wants you to feel

- E** frightened
- F** happy
- G** sad
- H** angry

23 The mysterious figure seen by the engineer was

- A** a live person in a black cloak
- B** a dead person in a black cloak
- C** just imagined
- D** a moth's shadow

24 From this story we do NOT know

- E** how the engineer felt when he saw the washed-out bridge
- F** whether the train finished its journey
- G** how the bridge was fixed
- H** any of the above

25 How did the engineer find out who the mysterious stranger was?

- A** He pasted the moth on the light and turned the light on.
- B** He picked the moth up and studied it.
- C** He pasted the moth on the light.
- D** He pasted the moth on the light and it waved its arms.

Edison's Birthday Committee (sponsored by Edison Pioneers) has announced an Edison Essay Contest in honor of the great inventor's discovery of the first successful electric light.

The subject of the essay is "Why We Should Remember Edison's Birthday, February 11th." Essays of from 500–700 words may be entered by children in the 4th, 5th, 6th, 7th, and 8th grades and must follow the rules published by The Edison Birthday Committee. The completed essays will be submitted through teachers in schools that have registered with the Committee.

FIRST PRIZE
GOLD EDISON MEDAL AND
\$500 U. S. SAVINGS BOND

The national winner will receive the Gold Edison Medal and a \$500 U. S. Savings Bond. Presentation will be made at the luncheon meeting of Edison Pioneers to be held at the Waldorf-Astoria Hotel, New York, February 5. Winner and a parent or guardian will have expenses paid to West Orange, New Jersey, and New York City. *Children's Digest* will publish the winning essay in the July-August issue.

In addition to the Gold Edison Medal, four Silver Edison Medals will be awarded (by mail) to the authors of the four runner-up entries. In every participating school, a Certificate of Award will be given to the writer of the best essay in each of the five eligible grades. Essays must be mailed by the school to the Committee's judges before December 10. Winners will be announced January 20.

- 26** The purpose of the essay contest is
E to award prizes for the five best essays
F to present a birthday gift to Edison
G to collect essays about Edison's birthday
H to honor the man who made the first electric light
- 27** You can tell that the first prize will be given before Edison's birthday because of the announcement
A says so in the second paragraph
B gives both the date of the award and the birthday
C hints at it in the first paragraph
D says so in the last paragraph
- 28** Why is the first prize described in capital letters?
E The author wants schools to register.
F It is more important than the subject of the essay.
G People should buy savings bonds.
H It is the most important prize.
- 29** How is a fourth-grade pupil likely to do in the contest?
A He can't win; he is too young.
B The rules are too hard for him.
C He can win one of the prizes for his grade.
D He can win a Certificate of Award only if he is brighter than the eighth-grade pupils.
- 30** The announcement does NOT tell us
E whether teachers may help the pupils
F how many prizes will be given
G to whom the essays must be sent
H how long the essays should be

Suddenly the whale opened its huge mouth. The creature made a queer rumbling, bubbling noise. A great grayish-white mass slid from his mouth, and floated slowly shoreward with the tide.

The whale shuddered. Then his great tail slapped the water, and his body seemed to lunge backward. He moved with surprising ease. Turning about, he headed out to sea. In another moment he disappeared, only to come up again much farther away. His spout shot up as if in farewell.

"Good-by, Mr. Whale!" Cal shouted. He turned to Uncle Gulliver triumphantly. "See, we just came back to say 'thank you' for getting the Coast Guard to haul him off the ledge yesterday. That noise he made was his way of saying 'good-by.' Hey! Uncle Gulliver! What are you looking at? Where you going?"

But already Uncle Gulliver was far down the ledge, slipping and sliding in his haste.

Cal followed nimbly. He came up with Uncle Gulliver who was bending curiously over an unpleasant-looking mass of grayish waxlike stuff.

"Foo! That smells!" Cal pinched his nose. "What's that stuff?"

"That, my boy," said Uncle Gulliver, straightening up and turning a beaming face toward Cal, "is your whale's thank you. It's the biggest hunk of ambergris I've ever even heard of! That smelly mess right there is worth thousands of dollars," Uncle Gulliver declared. "I can hardly believe my eyes."

Cal snickered. "You're kidding."

"No! I'm serious!" Uncle Gulliver explained patiently. "A small quantity of this ambergris makes the odor stay in perfume. That's why perfume manufacturers are wild to get hold of ambergris. So when your whale said good-by to you affectionately, he really left you a gift that's worth something!"

31 Cal thought the whale made a noise

- A** to show his anger
- B** to warn his audience
- C** to say good-by
- D** to get some air

32 The value of the whale's present is explained in

- E** paragraph 1
- F** paragraph 2
- G** paragraph 5
- H** paragraph 9

33 Paragraph 3 sounds as though Cal were

- A** pleased
- B** sorry
- C** worried
- D** disgusted

34 The story does NOT explain

- E** why ambergris is used in perfume
- F** why ambergris is so hard to get
- G** why ambergris is worth so much money
- H** where ambergris is to be found

35 The writer made the whale in this story seem

- A** dangerous
- B** stupid
- C** clumsy
- D** grateful

If you finish before time is called, you may check your work on either Part One or Part Two.

Cooperative

*Sequential
Tests of
Educational
Progress*

Science



General Directions

This is a test of some of the understandings, skills, and abilities you have been developing ever since you first entered school. You should take the test in the same way that you would work on any new and interesting assignment. Here are a few suggestions which will help you to earn your best score:

1. Make sure you understand the test directions before you begin working. You may ask questions about any part of the directions you do not understand.
2. You will make your best score by answering *every* question because your score is the number of correct answers you mark. Therefore, you should work carefully but not spend too much time on any one question. If a question seems to be too difficult, make the most careful guess you can, rather than waste time puzzling over it.
3. If you finish before time is called, go back and spend more time on those questions about which you were most doubtful.

DIRECTIONS FOR PART ONE

Each of the questions or incomplete statements in this test is followed by four suggested answers. You are to decide which one of these answers you should choose.

You must mark all of your answers on the separate answer sheet you have been given; this test booklet should not be marked in any way. You must mark your answer sheet by blackening the space having the same letter as the answer you have chosen. For example:

- O** Which one of the following is an animal?
- A** Bed
 - B** Dog
 - C** Chair
 - D** Box

Since a dog is an animal, you should choose the answer lettered **B**. On your answer sheet, you would first find the row of spaces numbered the same as the question—in the example above, it is **O**. Then you would blacken the space in this row which has the same letter as the answer you have chosen. See how the example has been marked on your answer sheet.

Make your answer marks heavy and black. Mark only one answer for each question. If you change your mind about an answer, be sure to erase the first mark completely.

Do not turn this page until you are told to do so.

PART ONE

FUN AT CAMP

Jack, Bobby, Joe, and Harry went to a summer camp. At the camp many interesting things happened to them.

- 1 Early one morning as the boys hiked through the fields, their feet became very wet. The night had been cooler, but there had been no rain. They wondered where the water on the grass came from. Which boy gave the right answer?

A Jack said the water came from the soil under the plants.
B Bobby said the water came from the leaves of the plants.
C Joe said the water came from the clouds over the plants.
D Harry said the water came from the air around the plants.

- 2 Late one afternoon, the boys watched a thunderstorm from the game room. After each flash of lightning they heard thunder. They talked about it and wondered why the lightning came first. Who was right?

E Jack said it was because the lightning flash hits the earth.
F Bobby said it was because light travels faster than sound.
G Joe said it was because the thunder is slowed down by the clouds.
H Harry said it was because the lightning is reflected from the clouds.

- 3 The storm caught a group of hikers in the middle of a large open field far from camp. The best thing for the boys to have done to keep from being hit by lightning would have been to lie flat on the ground. This would help to protect them from lightning because

A lightning usually strikes the high points
B the wet grass would protect them from the electricity
C water does not conduct electricity
D they were tired and could not run for the trees

- 4 The boys came out of the water after swimming one windy day. In order to get dry most quickly, they should have

E stood in the shade and let the wind dry them

F stood in the sun to dry

G rubbed themselves dry with towels

H played a game of tag

- 5 Harry wondered if sound is able to travel through water. To prove that sound can travel through water, he should

A ask his lifeguard or parents

B hit two stones together above the water of the lake and listen to the sound

C put his ear next to the water of the lake and hit two stones together above the water

D put his head under the water of the lake and hit two stones together in the water

- 6 Jack was curious about the birds and wondered if many of them stayed near the campgrounds through the winter. Jack could do as he pleased, what would be the best way to find out which birds stayed near the campgrounds?

E Study the birds which are near the campgrounds at different seasons.

F Read a book about birds that migrate.

G Watch the birds through binoculars and study their flight.

H Talk to people who live near the campgrounds.

- 7 On one of their hikes, the boys found the path blocked by a fallen tree. When they walked on it, the tree fell apart under their feet. This happened because

A the tree trunk was small

B the tree was dead

C the inside of the tree had rotted away

D the tree had soaked up a lot of water from the ground

SICK IN BED

One cold winter day, Jane didn't feel well and was very cross. Mother kept her home from school, so her brother Bill went to school without her. When Mother looked at Jane's throat, she found that it was red and sore.

Mother wondered if Jane had a fever. The quickest way for Mother to learn if Jane had a fever was to

- E** feel Jane's head
- F** ask Jane if she felt hot
- G** look at Jane's tongue
- H** look at Jane's eyes

Mother found that Jane had a fever. She knew this because the thermometer

- A** read below 98 degrees
- B** read 98 degrees
- C** read 101 degrees
- D** did not change its reading in Jane's mouth

Mother kept a record of Jane's temperature for two days. This is the way the record looked:

	Morning	Noon	Night
Monday	101°	101°	102°
Tuesday	100°	99°	98°

From the chart you can tell that Jane's temperature was highest at

- E** noon on Monday
- F** night on Monday
- G** noon on Tuesday
- H** night on Tuesday

When Bill came home from school, Mother looked at his throat and took his temperature, too. Mother did this because

- A** children often catch a disease from someone who is ill
- B** Bill went to school with other children
- C** it was cold outside
- D** Bill's shoes were wet from playing in the snow

- 12** Jane called to Bill from the bedroom, "Please come sit here on my bed and play with me." Mother would not let Bill be close to Jane because Jane was

- E** cross
- F** coughing and sneezing
- G** unhappy
- H** younger than Bill

BICYCLE RIDE

- 13** Before taking a ride on his bicycle, Tony always inspected it. One day he found that his front tire was soft. He used his hand pump to put more air in the tire. After a while he found that it became harder to use the pump. This was because the

- A** air in the tire pushed against the pump
- B** air started to leak out of the pump
- C** pump got too hot to hold
- D** pump got too sticky to push

- 14** While Tony was inspecting his bike, he also looked over the wheels. Why did he run his fingers over all the spokes?

- E** To straighten the bent spokes
- F** To find out from the sound of the spokes if they were tight
- G** To loosen up the tight spokes which were making the wheel wobble
- H** To make the spokes more springy for the ride

- 15** One day it suddenly started to rain while Tony was riding his bike. In order to get home quickly and safely, which one of these things should he NOT do?

- A** Put the brakes on gradually before making a turn.
- B** Slow down at crossings to make sure there are no cars coming from other directions.
- C** Stay on the proper side of the road.
- D** Ride close behind a truck to keep off the rain.

- 16** Tony's tires became smooth. All the tread was worn off. What is the best reason why he should get new tires for his bicycle?
- E** To improve the looks of his bicycle
 - F** To help him stop more quickly
 - G** To help him travel faster on level ground
 - H** To help him travel faster going downhill
- 17** Father told Tony he should always wear white shirts or white sweaters when he rides his bicycle at night. White clothing is best because it
- A** is cooler than dark clothing
 - B** is warmer than dark clothing
 - C** reflects light better than dark clothing
 - D** is cleaner than dark clothing

THE JACKSON GARDEN

Tom and Alice Jackson help to plant a garden every spring.

- 18** They have many kinds of garden tools. What is the main job of the tools which are wedge-shaped like the drawing?



- E** Breaking up soil
 - F** Flattening soil
 - G** Moving soil
 - H** Packing down soil
- 19** After they bought seeds and prepared the soil, they got some string and stakes to mark out the rows. How should they decide the distance to leave between the rows of seeds?
- A** Leave room to walk between the rows.
 - B** Follow the instructions on the seed package.
 - C** Leave 12 inches between the rows of plants.
 - D** Find out how tall a plant grows.

- 20** Tom and Alice decided to plant carrots in their garden. Tom read from the back of the package of carrot seeds these planting instructions: "Make sowings every two weeks up to early July; the last sowing will make full-sized roots for winter storing." Why do you think the package says to plant several times instead of only once?
- E** Because the temperature changes throughout the summer.
 - F** Because the amount of rainfall changes from week to week.
 - G** So that all the carrots would be full grown at one time.
 - H** So that the gardener could have fresh carrots all summer long.
- 21** Then Tom read, "When the plants come up, thin them so that they are 2 to 3 inches apart in the row." Tom asked his father, "Why must I pull out some of the good carrot plants?" Which of these answers do you think his father gave?
- A** The soil has too little plant food in it.
 - B** Many carrots grow in different shapes.
 - C** Carrots need the additional room underground to grow and store food.
 - D** Some carrots are dwarf and some are giant carrots.
- 22** Which method would be best for Mother to use to keep several carrots when she brings them in from the garden?
- E** Wrap them tightly in a plastic bag.
 - F** Place them in the home freezer.
 - G** Store them in a dry part of the kitchen.
 - H** Put them in a plastic bag in the refrigerator.

Tom wanted to learn which of three types of soil, clay, sand, or loam, would be best for growing lima beans. He found three flowerpots, put a different type of soil in each pot, and planted the same number of lima beans in each. He placed them side by side on the window sill and gave each pot the same amount of water.



The lima beans grew best in the loam. Why did Mr. Jackson say Tom's experiment was NOT a good experiment and did NOT prove that loam was the best soil for plant growth?

- A** The plants in one pot got more sunlight than the plants in the other pots.
- B** The amount of soil in each pot was not the same.
- C** One pot should have been placed in the dark.
- D** Tom should have used three kinds of seeds.

Tom saw that moist clay stuck together tightly and dry clay was almost as hard as rock. The clay held the water so that the water did not run through. Why didn't the plants in the clay soil grow as well as the plants in the loam?

- E** The roots lacked air and rotted.
- F** The clay was dark in color.
- G** The clay dried and cracks were formed.
- H** There were no earthworms in the clay.

25 Tom and Alice watched the birds in their garden. Some of the birds they saw in the summertime were not in the garden in winter. They wondered what happened to them. Which of their friends gave the best answer?

- A** Jack said, "The birds die because in winter there are no insects to eat."
- B** Bill said, "Birds only live one summer."
- C** Jane said, "The birds sleep all winter in a winter nest."
- D** Ruth said, "The birds fly to a winter home in the warmer South."

A TRIP TO THE MOON

Joe, Judy, and their friends were playing in the back yard. They had made a spaceship from wooden boxes. Today they were making plans for their first trip to the moon. Judy said, "Scientists tell us that the moon has no atmosphere. We will need many things for our journey."

26 Jack asked, "If we were really on the moon, how could we keep in touch with each other as we explored?" Which one of the children's ideas is best?

- E** Judy said, "Let's take a garden hose to use as a speaking tube."
- F** Phil said, "Let's find out from Mr. Jones where he got his hearing aid. We could take some of those."
- G** Joe said, "Let's make sure we take enough walkie-talkies with plenty of fresh batteries."
- H** Betty said, "Let's bring along some large megaphones like the cheerleaders use."

27 After they had landed on the moon, what would they most need to have before they could leave their spaceship?

- A** Food that would give them plenty of energy
- B** Warm clothing to protect them from the cold
- C** Raincoats and rubbers in case of a moon storm
- D** Tanks of air for their space suits

- 28** Judy said that she had read that the gravity of the moon is much less than the gravity of the earth. She said that when they land on the moon, they will find it easy to
- E** jump very high
 - F** light their campfire
 - G** fly their kites
 - H** measure their weights
- 29** On the imaginary trip, the space travelers decided to go from the moon to Mars. They wondered what kind of life they would find there. Which idea do you think is the best?
- A** Phil thought that living things on Mars would be similar to those on earth because the atmosphere is similar.
 - B** Alice thought that there would be green-skinned people.
 - C** Joe said that the people who live on Mars would have popping eyes and big heads.
 - D** Judy thought that they wouldn't know for sure until they got there.
- 30** The greatest problem for all space travelers would be the problem of
- E** escaping from the pull of the earth
 - F** taking the right kind of food
 - G** carrying the right clothing
 - H** taking the right kind of fuel to cook their food

A green octagonal sign with the word "STOP" in white capital letters.

Stop. If you finish before time is called, check your work on this part. Do not go on to Part Two until you are told to do so.

DIRECTIONS FOR PART TWO

Part Two contains the same kind of material as Part One. Mark your answers in the same way.

Do not turn this page until you are told to do so.

PETS IN CLASS

Miss Damrin's class kept several pets in their classroom.

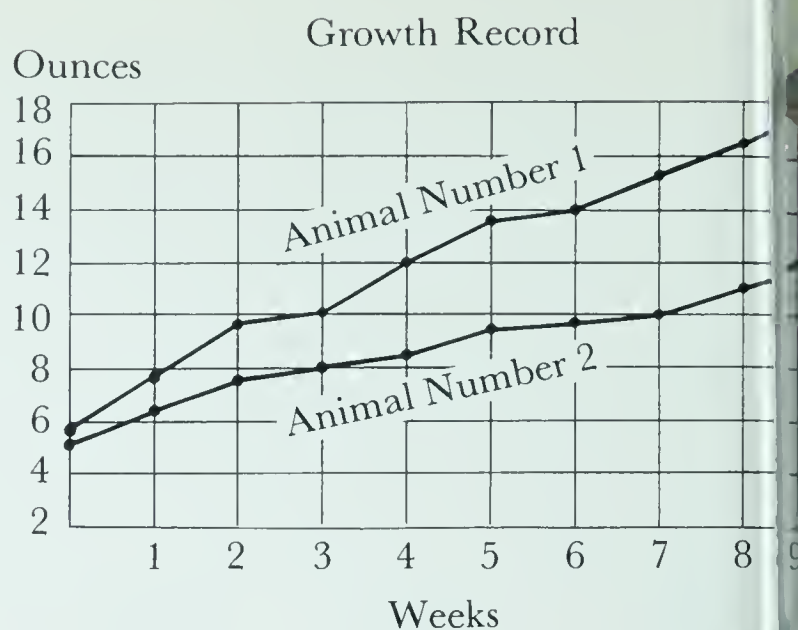
- 1 One afternoon they were looking at the beautiful, tiny, tropical fish in the aquarium. Jane asked, "Why is the water heated for these fish?" Which pupil gave the best answer?

- A Tom said, "To keep the water from freezing."
- B Bill said, "To kill harmful germs which might be in the water."
- C Ruth said, "To keep the water clean and clear for the fish."
- D Bob said, "To give the fish the kind of home in which they can best live."

- 2 For their classroom, Ruth's father gave the children two cages and two little guinea pigs which were the same size. They wanted to find out if dark whole-wheat bread is better for health and growth than white bread. How could they best carry out their experiment?

- E Give both guinea pigs white bread.
- F Give both guinea pigs whole-wheat bread.
- G Give one guinea pig whole-wheat bread and the other white bread.
- H Give one guinea pig whole-wheat bread, and the other no bread at all.

- 3 Bill's father also gave the class a pair of guinea pigs. The children gave the two guinea pigs different diets. The children weighed their guinea pigs each Friday. They kept a growth record. This is their chart.



From this chart, can you tell what happened to the guinea pigs?

- A Both gained the same amount of weight.
 - B Number 1 gained more than number 2.
 - C Number 2 gained more than number 1.
 - D Number 2 lost weight.
- 4 From this chart what was the difference in weight between the two guinea pigs at the end of nine weeks?
- E Number 1 weighed 6 ounces more than number 2.
 - F Number 1 weighed 18 ounces more than number 2.
 - G Number 2 weighed 6 ounces more than number 1.
 - H Number 2 weighed 12 ounces more than number 1.
- 5 Mary took one guinea pig home from school and fed him properly over the weekend. The guinea pig lay quiet and rested on the bottom of the cage. Billy took the other one home. He forgot to feed him on Monday morning. The guinea pig was restless, ran around the cage, and bit Billy's finger. What do you think the class learned?
- A Guinea pigs can live for days without food.
 - B Guinea pigs sleep when they are hungry.
 - C Guinea pigs fight each other for food.
 - D Hunger changes a guinea pig's actions.

Miss Damrin asked the class, "What kind of animal do you think scientists must use in their work when they are trying to learn more about foods, drugs, and the health of people?"

- E** An animal that is cheap
- F** An animal that is small and easy to keep in the laboratory
- G** An animal that lives a long time
- H** An animal similar in structure to people

Miss Damrin said, "Dogs, cats, rabbits, mice, and guinea pigs are members of the same group of animals." Why is this true?

- A** They can all make noises and protect themselves from enemies.
- B** They can all feed their babies with milk from the mothers' bodies.
- C** They can all breathe and move.
- D** They can all eat food and grow larger.

MAKING CANDY

One cold rainy afternoon, Bob and Mary decided to make candy. They needed sugar, water, butter, chocolate, and nuts.

Mary heated and stirred two cups of water and four cups of sugar in a pan. What do you think happened to the sugar?

- E** All the sugar dissolved in the water.
- F** None of the sugar dissolved in the water.
- G** The sugar and water together made about six cups of mixture.
- H** The sugar melted.

Mary put two squares of hard, bitter chocolate into the boiling mixture. Tom added four tablespoons of butter at the same time. Even though the amount of chocolate and the amount of butter was about the same, the butter melted before the chocolate. This happened because

- A** heat melts some solid things to liquids.
- B** each kind of solid needs a different amount of heat to make it melt.
- C** some solids melt in boiling water.
- D** the butter was warmer than the chocolate.

- 10** Mary heated the candy in the pan for 10 minutes after it began to boil. What happened to the mixture?

- E** It became a heavy syrup.
- F** It became very thin and watery.
- G** It became hotter after it boiled.
- H** Nearly all of the mixture boiled away.

- 11** Bob spread a thin coat of butter on his saucer. Mary did not. They poured the candy on the plates. What happened to the candy?

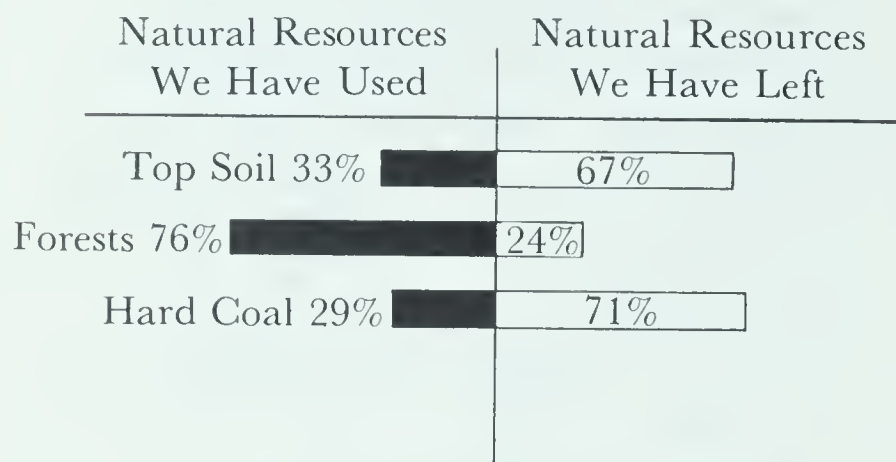
- A** Bob's candy stuck to his plate.
- B** Both children's candy stuck to their plates.
- C** Mary's candy stuck to her plate.
- D** The butter spoiled the candy.

- 12** The children set their plates of candy outside in the cold air. They did this because cold

- E** keeps the candy from sticking to the plate.
- F** makes many liquids become solids.
- G** keeps candy fresh longer.
- H** makes the water in the candy disappear.

A TRIP TO A NATIONAL PARK

The Taylor family spent their vacation at a lodge in a national park. The forest ranger showed the visitors at the lodge this graph:



- 13 The graph shows that we have most nearly used up our

A top soil
B hard coal
C forests
D oil

- 14 From the picture can you tell about how much of our rich top soil has been used up?

E All of it
F One-third of it
G One-half of it
H None of it

- 15 The ranger said every one must help *conserve* America's resources. By this he meant

A to use none of the resources
B to use all of the resources
C to use the resources wisely
D to sell the resources

- 16 The ranger showed the family the best way make a campfire. First he

E loosely piled long, dry twigs into a cone shape
F cleared brush and leaves from a space
G placed large pieces of dry wood in a pile
H poured gasoline on a pile of wood

- 17 The ranger said that boys and girls help to prevent forest fires by never leaving a campfire while it is burning and putting out the campfire. They can leave a campfire out by

A stamping on the ashes of the fire
B fanning the ashes of the fire with a newspaper
C putting water or soil on the ashes of the fire
D scattering the ashes of the fire

- 18 The forest ranger said that the weather bureau also helps fight forest fires. This is true because

E weather forecasts tell the temperature of the air
F weather forecasts tell the condition of the sky
G weather forecasts tell the direction and speed of the wind
H weather forecasts tell the time of sunrise and sunset

- 19 The ranger told the children that another way the weather bureau helps to prevent forest fires is by keeping a record of the amount of rainfall. This is true because

A much rainfall warns us that the forest will be wet
B little rainfall warns us that the forest will be dry
C much rainfall makes trees grow faster
D much rainfall makes seeds begin to grow

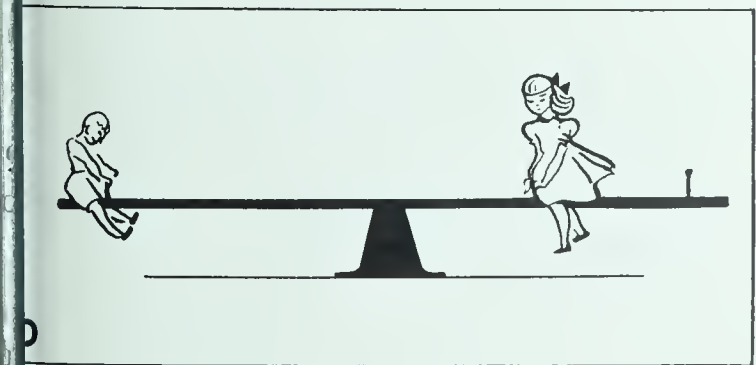
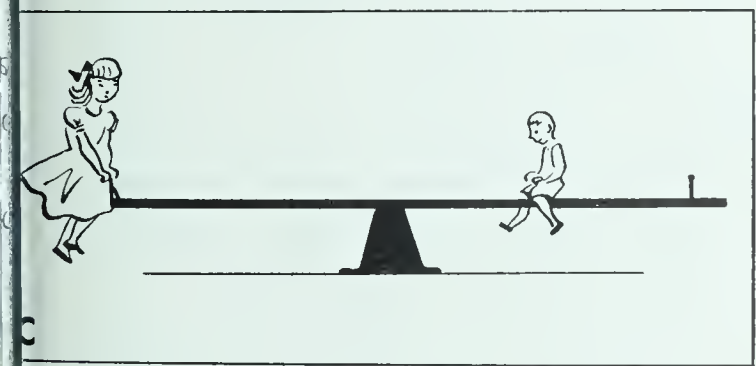
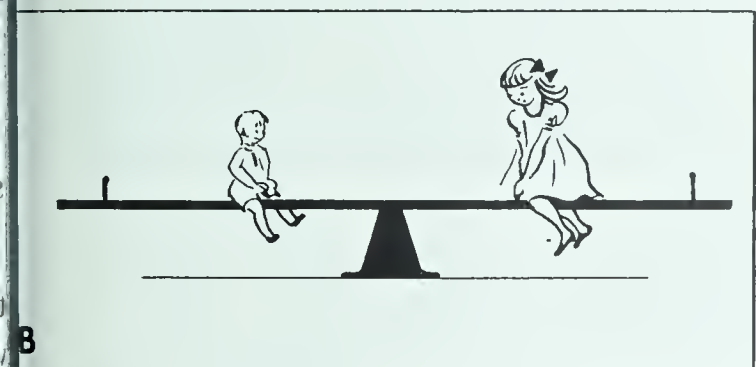
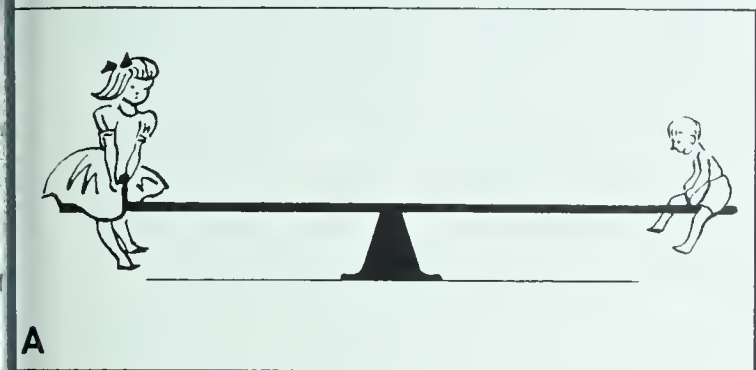
- 20 The forest ranger asked the family not to pick the wild flowers in the national park because

E many wild flowers are poisonous
F wild flowers wither and die very quickly after they are picked
G flowers make seeds from which new plants grow
H bees need the honey from wild flowers

THE PLAYGROUND

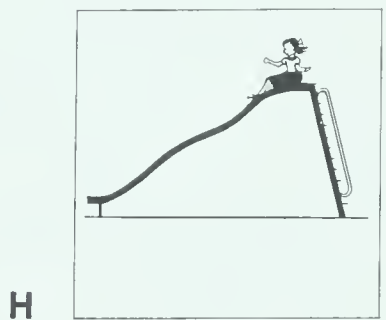
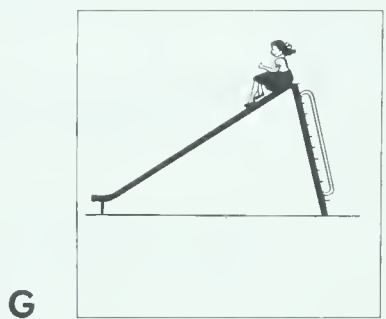
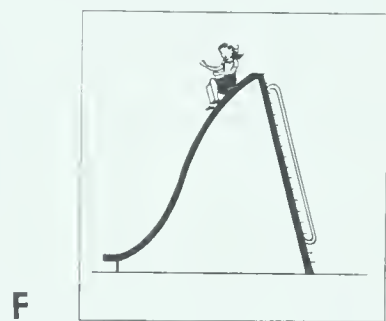
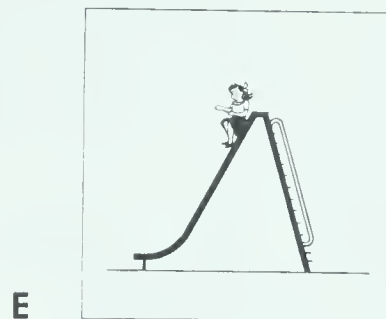
Betty and George lived near the playground at the park. Betty took her little brother, George, to the playground.

- 1 George wanted to seesaw with Betty. Which picture shows the best way for Betty who weighed 100 pounds to balance George who weighed 50 pounds?



- A Picture A
B Picture B
C Picture C
D Picture D

- 22 Betty saw the different slides on the playground and decided to try one. On which of the following slides would she be going the fastest at the end of her ride?



- E Picture E
F Picture F
G Picture G
H Picture H

THE DAIRY

23 George played with a big rubber ball in the wading pool. He pushed it to the bottom of the pool. It came right back up. He asked his friends why it did this. Which boy gave the best answer?

- A** Tom said, "The ball floats because it is made of rubber which is light."
- B** Bill said, "The ball floats because it is big and round."
- C** John said, "The ball floats because it is made of waterproof rubber."
- D** Joe said, "The ball floats because it is hollow and filled with air."

24 Betty's dog jumped in the wading pool. He swam all the way across with the tip of his nose just above the water. Betty asked her friends why her dog couldn't swim underwater like the fish swam in the park pond. Which is the best answer?

- E** "Fish have tails and fins which help them swim."
- F** "Fish have scales on their bodies."
- G** "Fish have gills which take oxygen from water."
- H** "Fish have streamlined bodies."

25 George liked to play in the sandbox. The sand glistened in the sunlight. Betty said that sand is useful to people in the making of glass. George wondered how you could see through sand. How do you think sand can be used to make glass?

- A** By separating all the glistening, shining grains from the sand
- B** By adding chemicals to the sand and heating it
- C** By washing away the dirt from the sand
- D** By grinding it into finer grains of sand

Helen's class had been studying about food. They were pleased when Helen's father invited the class to visit the dairy in which he worked. He met the class at the dairy and took them on a tour through it.

26 The class saw thousands of milk bottles being washed in a machine. The class was asked what they thought was the dairy's most important problem in washing the bottles. Which do you think it is?

- E** To keep the bottles from breaking
- F** To kill germs in the bottles
- G** To make the bottles look clean
- H** To wash the bottles quickly

27 John saw that the cases of empty milk bottles were put on a moving belt. This belt carried the cases to the second floor where the bottles were filled. The most important reason for using the moving belt was that

- A** fewer people are needed to do the job
- B** it breaks few bottles
- C** it keeps the bottles clean
- D** it makes the dairy a quieter place in which to work

28 One of the wheels on the machine carrying cases of bottles started to squeak. A man put oil on the wheel. Which is the best reason for doing this?

- E** Oil cleans the wheel.
- F** It will prevent the machine from wearing out so soon.
- G** It will make the machine safer to operate.
- H** All moving metal parts need oiling every day.

George said that his doctor had told him that milk may carry the germs of tuberculosis. The best way for you to make sure your milk is free from disease-giving germs is to

- A drink only cold milk
- B drink only milk from nearby farms
- C drink only raw or unpasteurized milk
- D drink only pasteurized milk

Betty told the class that she had heard that pasteurized milk would never turn sour. Some of her classmates were uncertain about this. The best way to find out would be to

- E ask the man in charge of the dairy and accept his answer
- F look up the answer in a dictionary
- G let the class vote on the question and accept their opinion
- H put a bottle of pasteurized milk on the window sill and look at it every day

If you finish before time is called, you may check your work on either Part One or Part Two.

Form **4** A

Catalog No. 374-01-1

Cooperative

*Sequential
Tests of
Educational
Progress*

Writing



General Directions

This is a test of some of the understandings, skills, and abilities you have been developing ever since you first entered school. You should take the test in the same way that you would work on any new and interesting assignment. Here are a few suggestions which will help you to earn your best score:

1. Make sure you understand the test directions before you begin working. You may ask questions about any part of the directions you do not understand.
2. You will make your best score by answering *every* question because your score is the number of correct answers you mark. Therefore, you should work carefully but not spend too much time on any one question. If a question seems to be too difficult, make the most careful guess you can, rather than waste time puzzling over it.
3. If you finish before time is called, go back and spend more time on those questions about which you were most doubtful.

DIRECTIONS FOR PART ONE

Each of the questions or incomplete statements in this test is followed by four suggested answers. You are to decide which one of these answers you should choose.

You must mark all of your answers on the separate answer sheet you have been given; this test booklet should not be marked in any way. You must mark your answer sheet by blackening the space having the same letter as the answer you have chosen. For example:

- O** Which one of the following is an animal?
- A** Bed
 - B** Dog
 - C** Chair
 - D** Box

Since a dog is an animal, you should choose the answer lettered **B**. On your answer sheet, you would first find the row of spaces numbered the same as the question—in the example above, it is **O**. Then you would blacken the space in this row which has the same letter as the answer you have chosen. See how the example has been marked on your answer sheet.

Make your answer marks heavy and black. Mark only one answer for each question. If you change your mind about an answer, be sure to erase the first mark completely.

Do not turn this page until you are told to do so.

1 Grant city, Calif.

2 Apr 4, 1955

3 Dear Third Grade

4 How are you? 5 I am fine. 6 I loved your play that we saw and you did it very good and it was a good story. 7 Your study's are good I hope.

8 I liked the mexican hat dance very much. 9 I liked Kenneth's Accordion playing to. 10 I liked the song the girls sang. 11 I liked all of it won't you give us another show.

12 Yours truly

13 Kenny Count

1 At the top in 1, which way should the address be written?

A Grant City, Calif.

B Grant City, California

C Grant city, Cal.

D Grant City, california

2 At the top in 2, how should the month be written?

E Apr 4, 1955 (As it is now)

F Ap. 4, 1955

G Apr. the 4(th) 1955

H April 4, 1955

3 Which of these is best for 3?

A Dear Third Grade.

B Dear Third Grade,

C Dear Third Grade!

D Dear Third Grade;

4 In Sentence 6 the words *very good* should be changed to

E very well F much better

G the very best H the most

5 What is the best way to write Sentence 11?

A I liked all of it, won't you give us another show.

B I liked all of it. Won't you give us another show.

C I liked all of it, won't you? Give us another show?

D I liked all of it. Won't you give us another show?

6 The best change in 12 is

E Yours truly.

F Yours truly:

G Yours truly,

H Yours truly;

A GOOD SPORT

1 Bob is a good sport. 2 And a good baseball player. 3 One day I hit Bob with the ball. 4 May the 9. 5 Bob and some other kids were playing catch and I throw the ball and the ball hit him on the head and Bob did not get angry and throw the ball at me. 6 He throw the ball to me he is a good kid don't you think.

7 Which title fits the story best?

A A Good Sport (As it is now)

B A Good Kid

C A Good Baseball Player

D An Accident

8 Which is the best way to write 1 and 2?

E Bob is a good sport. And a good baseball player. (As they are written now)

F Bob is good sport and good baseball player.

G Bob is a good sport and good base ball player.

H Bob is a good sport and a good baseball player.

9 Which word in the story should be changed because it is wrong?

A hit (in 3)

B were (in 5)

C throw (in 6)

D don't (in 6)

10 Which part could be left out of the story?

E 1

F 4

G 5

H 6

11 Part 6 is more than one sentence. With what word should Sentence 6 end?

A ball

B me

C good

D kid

12 What mark should follow the last word in the story?

E .

F !

G ,

H ?

THE STORM

1 I'm going to tell you about the storm that blew down a mulberry tree. **2** It was in the evening of a hot, humid day when it happened. **3** A stiff puff of wind swept away the stickiness in the air. **4** It began to get cooler. **5** We went inside our houses. **6** I was frightened as the cold wind whistled around the house. **7** Deafening crashes came from up and down the street. **8** And then POOF! out went our electricity. **9** So I went to bed. **10** For a while all I could do was lie awake. **11** Finally, on that night I pulled the covers over my head and fell asleep. **12** When pearly-pink Dawn crept over the hillsides I rose and stuffed cookies in my pocket. **13** I stepped out into the back yard. **14** I sucked in my breath and stared, stared at something I couldn't believe had happened. **15** The air was dead still. **16** I moved forward. **17** It was as if something important had happened. **18** Our old mulberry tree had finally fallen. **19** I had noticed the mulberry since I was a baby, and I had thought it was so large and beautiful that it would live on forever. **20** The air was deadly still, and so was I.

- 3** How can Sentences 5 and 6 be best written to show excitement and read well?
- A** Realizing what was coming, we all rushed into our houses. Inside I could hear the cold wind whistling around the house, and my hands began to tremble.
 - B** Scared as the wind whistled, around our houses. We went inside and heard it. The storm was pretty bad!
 - C** We knew what was coming and all ran into our houses. I was shaking, and the wind was cold and whistling around the house outside. I could hear it plainly.
 - D** We all raced into our houses, there being no question about the approaching storm. Inside the wind could be heard whistling around the house. Though I was not in its blast, I noticed that I was trembling, just as if I were outside in the dropping temperature.

- 14** The way in which Sentence 9 is linked to Sentence 8 is not clear. Which change makes the best sense and reads best?
- E** I went to bed by a candle in the dark.
 - F** Feeling completely helpless, I went to bed.
 - G** I went to bed, but I stubbed my toe once.
 - H** So I went to bed, I felt safer because it was dark, except with candles.
- 15** What part of Sentence 11 is NOT needed?
- A** Finally I pulled
 - B** over my head
 - C** on that night
 - D** and fell asleep
- 16** What would be the best thing to do with Sentence 19?
- E** Leave it where it is, without change.
 - F** Put it after 16, and change it to: I had thought, noticing it since a baby, our large mulberry tree would not blow down because it was so beautiful.
 - G** Put it after 17, without changing the wording.
 - H** Take it out of the story.
- 17** Let us say you have decided that the story needs one last sentence after 20. You think that this extra sentence should remind the reader of the writer's feelings. Which of these sentences would be best?
- A** I shook my head.
 - B** I shuddered and slowly went back inside.
 - C** I began to think about school, Was I late?
 - D** I took an axe and started chopping up the mulberry for firewood.
- 18** If this story were divided into just two paragraphs, with which sentence should the second paragraph begin?
- E** At 6
 - F** At 9
 - G** At 12
 - H** At 17

A committee in social studies has asked a student member to write the Pan American Union to get some information on Brazil. This is his letter.

Hattown Public School
Hattown, Montana
Sept. 19, 1955

Pan American Union
Washington, D. C.

Dear Sir:

1 We have just had a play on inventers, and now we're studing about Brazil. 2 Eddie is our committee chairmen and the committee want me to write you for some information on Brazil. 3 I want to dig up more on education.

a. 4 Does it have enough schools for their kids?

b. 5 Do the kids learn English, we learn Spanesh, in the grade school.

c. 6 Do they play baseball in their schools?

d. 7 Is Brazil coffey the best in the world?

8 We had a visiter in class and she said it wasn't. 9 Is that true?

e. 10 Do they have school papers like we do? 11 I'll bet they aren't as good as our "Hattown Herald."

12 Please answer these questions for us.

13 These are not all our questions so send us any other information you've got there.

14 Thanks a lot.

15 sincerely

Jim

19 In writing a business letter you should write only what is needed to make the letter clear. How would you change Sentence 1?

A We're studying Brazil now, but before we were studying inventors.

B Our class in social studies is studying about Brazil.

C We had a play about inventors, but finished it and started on Brazil next.

D Brazil is what we're studying about right now, in this school.

20 Think about what is needed in Sentences 2 and 3. How should you change them?

E My committee asked me to write for some information on education in Brazil.

F Eddie wanted me to write for some education facts on Brazil, and I'm doing it.

G My committee asked me to find out some information on Brazil's education, I'm writing you about it.

H I was asked by Eddie, our chairman, to write you about Brazil's education. What can you dig up for me?

21 The first question is in Sentence 4. How could it be most clearly written?

A Does it have enough schools for their kids? (As it is now)

B What about enough schools there?

C Do kids there have enough schools for them, in Brazil?

D Does Brazil have enough schools for its children?

22 Part of 5 does not keep to the point of the letter. How could it be most simply written?

E Do the grade kids get taught English in Brazil like they learn us Spanish here?

F Do the grade school pupils in Brazil learn English in school?

G What about English? Do you study it?

H We learn Spanish, in the grades, we wondered if the Brazil kids, learn English in the grades?

23 Which is the best way to write Sentence 13?

A These are not all our questions so send us any other information you've got there. (As it is now)

B There are lots of questions, too, that I can't think now so please answer them.

C These are some questions, maybe there are other good questions. So please answer them too.

D We would be glad to have any other interesting information about Brazil, too.

Go on to the next page.

24 How could 14 be best written?

- E Thanks a lot. (As it is now)
- F Thanking you in advance.
- G Thank you very much.
- H Thanks, our friends, for all the dope.

25 What is the best way to write the ending of this letter?

- A Sincerely,
Jim
- B Sincerely,
Jim Smith
- C sincerely,
Jim
- D Sincerely
Jim Smith

This is an announcement written by a pupil to call attention to the new books in the library.

OUR BOOKS

1 Hey kids! 2 Some new books came in to our school a little while ago. 3 They are adventure books. 4 Let's all thank Mrs. Mason heartily. 5 There are about 225 books, and they are about horse stories, dog stories, mysteries, biographies, and very funny ones. 6 Our librarian, Mrs. Mason made sure she got the very best books. 7 These books should be good, I think.

6 In 1, which beginning is most likely to attract attention?

- E Hey kids! (As it stands)
- F My fellow students.
- G Be sure to read carefully what I'm going to say.
- H This is an announcement.

27 Which way of writing Sentences 2 and 3 is best?

- A Some new books came in to our school a little while ago. They are adventure stories. (As the sentences are written now)
- B Our school received some new books, the books are about adventure stories.
- C Our school has been supplied wonderfully with many new books that tell about adventure.
- D Our school just received a wonderful supply of new adventure books.

28 What is the best place in the announcement for Sentence 4?

- E After 1 F After 2
- G After 5 H After 6

29 Sentence 5 is mixed up. What is the best way to change it?

- A The books are about horse stories, and very funny ones. Also mysteries.
- B The books are about dogs, horse stories, and very funny ones.
- C The books are horse and dog stories, mystery stories, biographies, and funny tales.
- D The books are funny ones, and about horses, dogs, and mysteries.

30 How could Sentence 7 be written in the strongest way?

- E These books should be good, I think. (As it is now)
- F These books are to be enjoyed, and you should like them, all you grades.
- G I hope you enjoy these books, and I guess you will?
- H Everyone from first to sixth grade will love these books.



Stop. If you finish before time is called, check your work on this part. Do not go on to Part Two until you are told to do so.

DIRECTIONS FOR PART TWO

Part Two contains the same kind of material as Part One. Mark your answers in the same way.

Do not turn this page until you are told to do so.

PART TWO

This is a boy's comment on a movie he has seen in school.

MOVIE ABOUT WATER POLLUTION

1 I thought the movie was very good because that type of movie is hard to be made clear. **2** it makes people realise why they shoun't dump their garbage in a stream or lake. **3** Betsy was noisy behind me, and I couldn't hear for some of it. **4** The trouble is that every time I see a movie like that it makes me worry about the thing their talking about, like the water shortage. **5** Little things like that could end the world. **6** All said all the movie was very good.

1 The beginning of a paragraph should tell what you are going to talk about. Which of these would be the best way to begin this paragraph?

- A** I enjoyed the movie on water pollution which I saw yesterday. It was better than most movies of that kind because it made its point so clear.
- B** The movie on water pollution was swell. Most of the time I think that type of movie is hard to be made clear, and I don't like them.
- C** The movie yesterday was good. I thought it was good because that type of movie is hard to make a point on, and this one did that. On water pollution.
- D** I thought the water pollution movie made its points clear and, since the type of movie it is, is hard to make a point about, that made it real good, it explained the pollution all right.

- 2** Which is the best way to make the idea in Sentence 2 sound more complete?
 - E** It makes people know why they are bad boys to dump garbage into streams and lakes around our country.
 - F** It makes you realize we shouldn't throw garbage into streams, and lakes, it's a bad thing, to do.
 - G** It makes people realize why they shouldn't dump garbage into streams and lakes, which supply our drinking water.
 - H** It makes people think that it's wrong to dump garbage into our lakes and streams; it's not any sensible thing to do, by anybody.
- 3** What should you do with Sentence 3 in order to make the paragraph better?
 - A** Leave it where it is.
 - B** Take it out.
 - C** Make it the first sentence in the paragraph.
 - D** Put it after Sentence 4.
- 4** Sentence 5 is too strong a statement. How could the idea in it be best expressed?
 - E** Such things as water pollution and other such things etc., will end the world.
 - F** So many things could kill us all, every one is always in this trouble.
 - G** Water pollution can be very serious and dangerous.
 - H** This world can't last long.
- 5** Which way of writing Sentence 6 is clearest and best?
 - A** All said all the movie was very good (As it is now)
 - B** The movie, to us, was very good altogether.
 - C** All the movie was liked by all people who talked about it.
 - D** We all liked the movie very much.

1 511 Alos St
N Sac'to, Calif
May 16, 1955

2 Dear Grandma and Grandpa,

3 I am writing this letter for language at school. 4 I was going to write you after school but the teacher let us write a letter to any one I wanted to write to so I suppose I might as well write you as anybody. 5 Tell Aunt May to write me about this, and I hope I can stay two or three weeks at your house after school is out.

6 Dicky and Sheila are alright so is Mother and Father. 7 I hope you are alright. 8 Well I might as well stop now as later. 9 Because school is allmost out.

10 love and kisses

Molly

6 In 1 (the heading of the letter), which should NOT be followed by a period?

- E St (Street)
- F N (North)
- G Calif (California)
- H May

7 The last part of Sentence 4 now reads: . . . so I suppose I might as well write you as anybody. What would be the kindest way of writing this part of 4?

- A so I'll have to write you.
- B so I chose you.
- C so I suppose I ought to write you, as well as anybody.
- D so I got you.

8 A new paragraph should begin at Sentence 5. How could 5 be most clearly written?

- E Tell Aunt May to write me about this. Because I'm going to stay two or three weeks at your house after school.
- F I'm going to stay two or three weeks at your house after school. Please tell Aunt May to write me about this.
- G I want to stay at your house, and Aunt May is to write me, about it, after school is out, for two or three weeks.
- H I hope I can stay two or three weeks at your house after school. Please tell Aunt May to write me about this.

9 How could Sentence 6 be most carefully written?

- A Dicky and Sheila are alright. So is Mother and Father.
- B Dicky and Sheila are all right. So are Mother and Father.
- C Dicky and Sheila are all right, and so is Mother and Father.
- D Dicky and Sheila and Mother and Father are alright.

10 What is the best way to write Sentences 8 and 9?

- E Well, I must stop now because school is almost over for the day.
- F Thank heavens school is almost over now, and I'd better stop now too.
- G This is the end of the letter because school is almost over, and I had better stop now.
- H School is just about out, now. So, I guess I might as well stop, now as later, and this is the end of this letter.

MINUTES

Oct 15, 1955

1 The first reglar meeting of the Bluebirds was held in Ellens home Friday Oct 15. **2** Ellen, our new president called us to order. **3** Marie, our new sec was abcent, and Mrs Boone, our Camp Fire leader read the minutes because Marie was not here. **4** The minutes told about our election meeting after school on Oct 1. **5** When Ellen and Marie was elected. **6** This was two weeks ago when the bluebirds organized and elected officers.

7 In our meeting we discussed plans for a Halloween party on Oct 29. **8** Christine Louise and Ellen will bring cookies. **9** Nancy will bring Punch. **10** Ada will bring cups and napkins.

11 After this business meeting, Ellen's mother serve cookies and cocoa. **12** Then we adjurned fast and we all hurried to get home. **13** Before it got too late.

Karen Clark

Sec

11 Which sentence is NOT needed?

- A** 1
- B** 3
- C** 6
- D** 7

12 Which way of changing the first part of Sentence 3 is best?

- E** Marie, our new sec was absent,
- F** Marie our new secretary, she was absent,
- G** Marie, our new sec., was absent,
- H** Marie, our new secretary, was absent,

13 Which parts of the minutes should be put together to make *just one* good sentence?

- A** 2 and 3
- B** 4 and 5
- C** 5 and 6
- D** 7 and 8

14 In Sentences 8, 9 and 10, the words *will bring* are used three times. Which would be the best way to change the sentence about Nancy (Sentence 9)?

- E** Nancy she will give us some punch.
- F** Nancy offered to make some punch.
- G** The punch Nancy offered to make.
- H** The punch will be made by Nancy, and she offered to do this and bring it.

15 In Sentence 11, one word is wrong. Which of these words is it?

- A** meeting
- B** Ellen's
- C** serve
- D** cocoa

16 Which of these is the best way to write about adjourning a meeting (Sentence 12)?

- E** Then we adjourned fast.
- F** As soon as we finish eating, we adjourned fast.
- G** We adjourned fast then, as fast as we stopped eating.
- H** The meeting adjourned at 7:30.

17 Which sentence has a mistake in one of its words?

- A** Ellen and Marie was elected.
- B** It got too late.
- C** The first regular meeting was held Friday, Oct. 15.
- D** The meeting was held in Ellen's home.

18 The best thing about these minutes is that

- E** the writer told an exciting story
- F** each word is spelled correctly
- G** all the sentences are complete
- H** the writer told things in the right order

PITTER-PATTER

1 Once in bed I heard a pitter-patter, pitter-patter, over and over again. **2** I told my mother. **3** She said, "Oh pooh." **4** I told my father. **5** He said, "Go to sleep." **6** Go to sleep! **7** How could I go to sleep? **8** I tried and tried. **9** I finally went to sleep. **10** In the morning when I woke up I heard pitter-patter. **11** I was mad. **12** I got up and got dressed. **13** Before I went to school, I set a mouse trap. **14** Then I went to school. **15** That night when I went to bed, I heard pitter-patter, pitter-patter, pitter-patter, SNAP!

22 This story has many short sentences that might be written together. Choose the best way to write Sentences 2 and 3 in one sentence.

- A** I told it to my mother and mother said, "Oh, pooh" about it.
- B** When I told my mother, she said, "Oh, pooh."
- C** I told my mother and then she told me, "Oh, pooh."
- D** My mother was told this, by me, she did not say, anything but "Oh, pooh."

23 Sentences 4 and 5 could be written as one. Choose the best sentence for this.

- E** My father, when I told him he said, "Go to sleep."
- F** I told my father although he said, "Go to sleep."
- G** I told my father, but he said, "Go to sleep."
- H** When my father said, "Go to sleep," I told him.

What is the best way to write Sentences 6 and 7?

- A** Go to sleep! How could I go to sleep? (As they are written now)
- B** And I should go to sleep! How could I go to sleep?
- C** He wanted me to go to sleep. How could I?
- D** He said that, I should sleep, how could I do that?

22 Choose the best way to write Sentences 8 and 9 as one sentence.

- E** I tried and I tried, and I finally went to sleep.
- F** I tried and I tried to sleep, I went, finally.
- G** After I tried and I tried, then I went to sleep finally.
- H** I finally went to sleep but I had tried and tried.

23 Which is the strongest way to write Sentence 11?

- A** I was mad. (As it is now)
- B** Was I mad?
- C** Was I mad!
- D** I was sort of mad.

24 Which of these is the best thing to do with Sentences 12 and 14?

- E** Make one sentence out of them.
- F** Put 12 and 14 together in front of 15.
- G** Leave them out of the story.
- H** Put 12 and 14 together in front of 11.

25 Which sentence builds up to the strongest ending for the story?

- A** That night when I went to bed, I heard pitter-patter, pitter-patter, pitter-patter, SNAP! (Sentence 15, as it stands)
- B** That night going to bed, hearing the noise of little feet, the trap snapped and caught it.
- C** That night I went to bed. I heard pitter-patter. I heard, "Snap," from the trap.
- D** When I went to bed that night, I heard "SNAP" after I heard pitter-patter, pitter-patter.

BALA AND KUDU

- 1** Bala and Kudu lived in the Everglades.
2 Both Bala and Kudu had a pet to play with.
3 Bala's pet was a monkey.

4 Bala's monkey is a little monkey. **5** The monkey is so little that she could hold it in one hand. **6** Kudu had a pet anteater. **7** The pet anteater didn't like him to pet it.

8 It had a long coat of hair. **9** It's tail is long.

10 One day a man came to the Everglades to buy Kudu's anteater. **11** The anteater did not want to go. **12** So the anteater ran away into the Everglades.

13 After a while the man left. **14** Then the anteater came back, and they lived happily ever after.

- 26** Which is the best way to write Sentences 1 and 2?

E Because Bala and Kudu lived in the Everglades, they had two pets to play with.

F Bala and Kudu, lived in the Everglades, they had a pet to play with for both of them.

G In the Everglades, lived Bala and Kudu, and Bala and Kudu had a pet to play with.

H Bala and Kudu lived deep in the Everglades. Each of them had a pet to play with.

- 27** Which is the best way to write Sentences 3, 4 and 5?

A Bala had a pet monkey that was so small she could hold it in one hand.

B Bala's pet was a monkey, and the monkey was little. She could hold the monkey in one hand.

C Bala's pet was a little monkey, and Bala could hold the monkey in one hand.

D Bala had a monkey, as a pet. The monkey was a little enough of a pet for her to hold the pet monkey in her hand.

- 28** The story should be in two paragraphs. The first paragraph would describe Bala and Kudu's pets. Which sentence should end Paragraph 1?

E 6

F 7

G 8

H 9

- 29** The story uses the same words over and over. In Sentences 6 and 7, which is the best way to keep from using the same words too often?

A Kudu had a pet anteater, and his pet anteater didn't like to be petted.

B Kudu had a pet anteater which did not like him to pet it.

C Kudu had a pet anteater, this anteater didn't like Kudu to pet him.

D Kudu's pet was an anteater, and Kudu's pet anteater didn't like to be petted.

- 30** How could Sentence 14 be best written?

E Then the anteater came back, and the children and their pets all lived happily ever after.

F Then the anteater came. They lived happily ever after.

G The anteater came. They lived happy ever after.

H They lived happy, ever after, with the anteater coming to its home again.

If you finish before time is called, you may check your work on either Part One or Part Two.

APPENDIX C

ONE COPY OF EACH OF THE FOLLOWING PREDICTIVE TESTS:

DETROIT ADVANCED FIRST-GRADE INTELLIGENCE TEST

GATES PRIMARY PARAGRAPH READING TEST

GATES PRIMARY WORD RECOGNITION TEST

CALGARY PRIMARY ARITHMETIC TEST

DETROIT ADVANCED FIRST-GRADE INTELLIGENCE TEST

By Harry J. Baker
Clinical Psychologist, Detroit Public Schools, Detroit, Michigan

TEST : FORM A

Name.....Boy or Girl.....Grade.....Class.....
(First name, initial and last name)

Date of Testing.....Date of Birth.....Pupil's Age: Yrs.....Mos.....
Month Day Year Month Day Year

Teacher.....Examiner.....

School.....

City.....County.....State.....

TEST	SCORE
1	
2	
3	
4	
5	
6	
7	
Total	

A

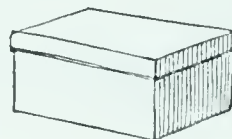
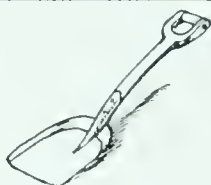
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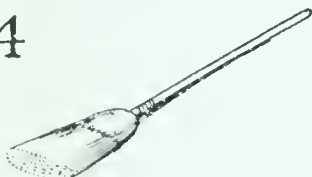
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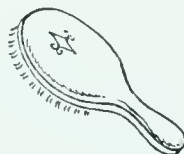
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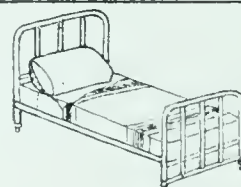
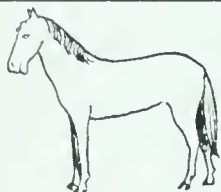
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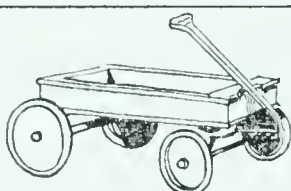
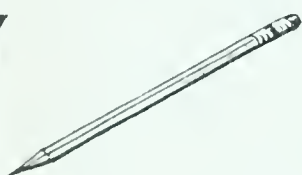
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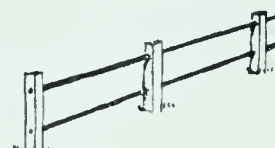
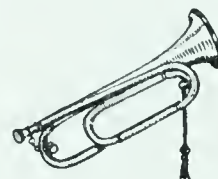
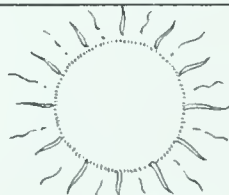
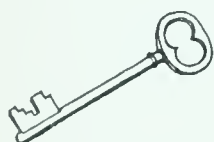
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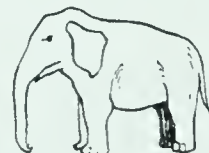
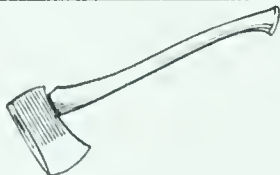
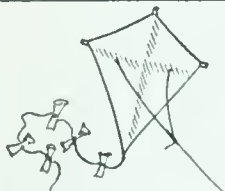
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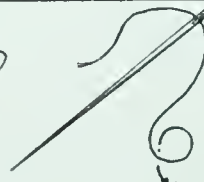
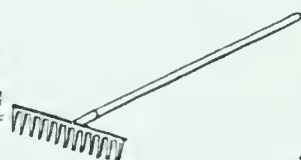
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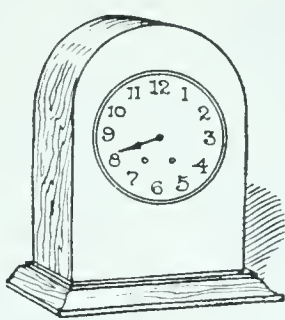



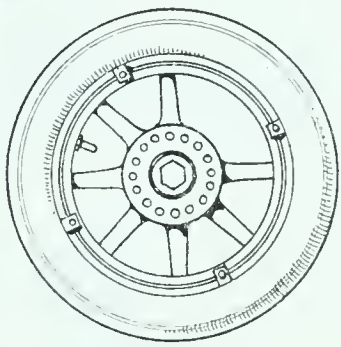




10



11



<p>A</p> 	<p>1</p> 	<p>2</p> 	<p>3</p> 
<p>4</p> 	<p>5</p> 	<p>6</p> 	<p>7</p> 
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<p>12</p> 	<p>13</p> 	<p>14</p> 	<p>15</p> 
<p>16</p> 	<p>17</p> 	<p>18</p> 	<p>19</p> 

A



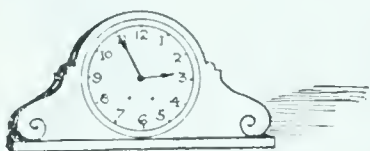
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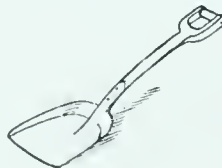
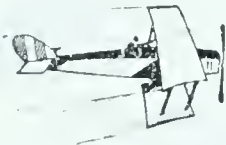
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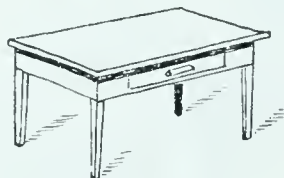
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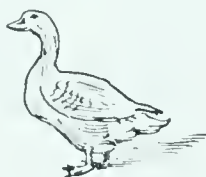
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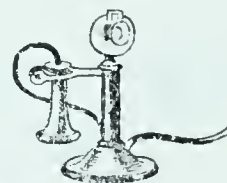
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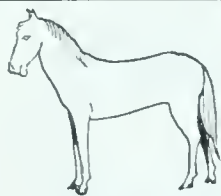
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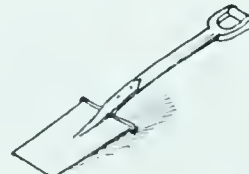
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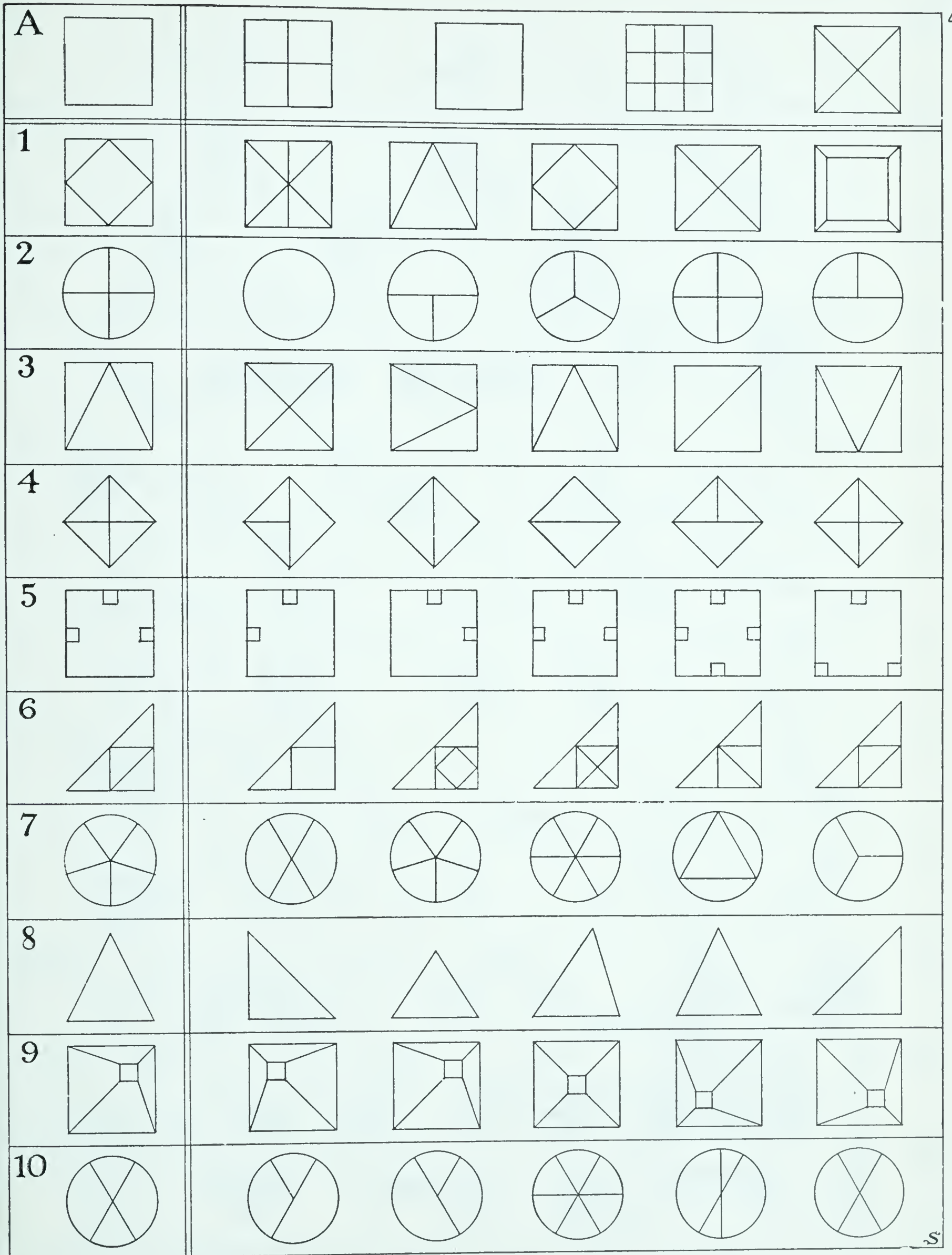


















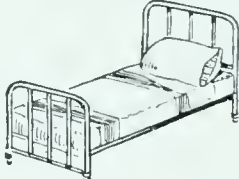



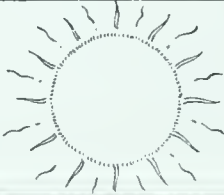



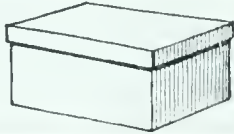




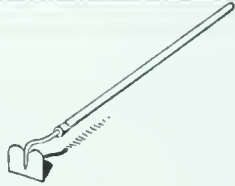




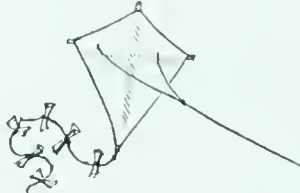





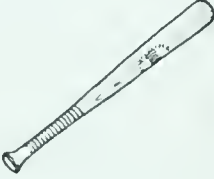
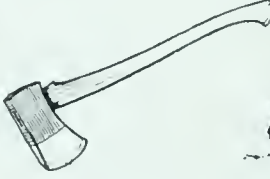

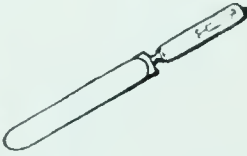












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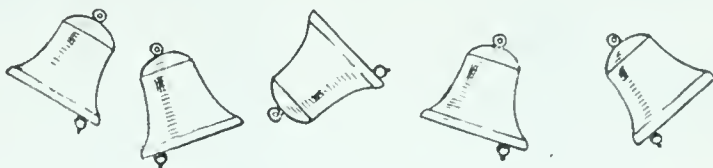


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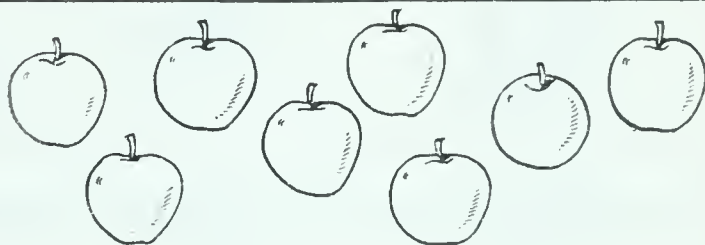
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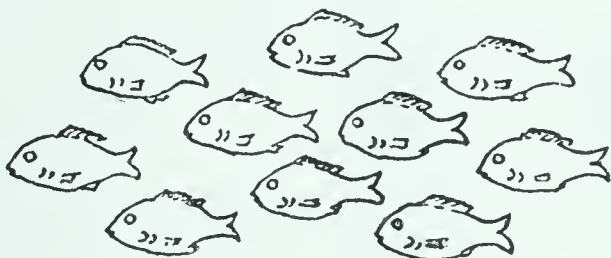
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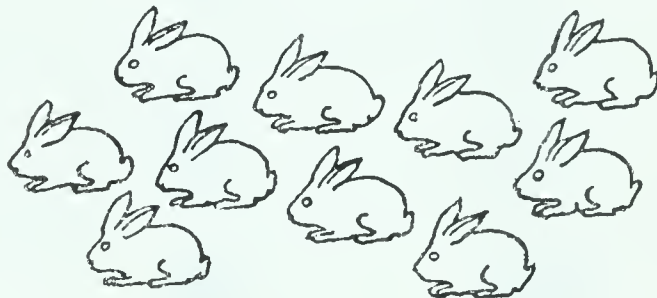
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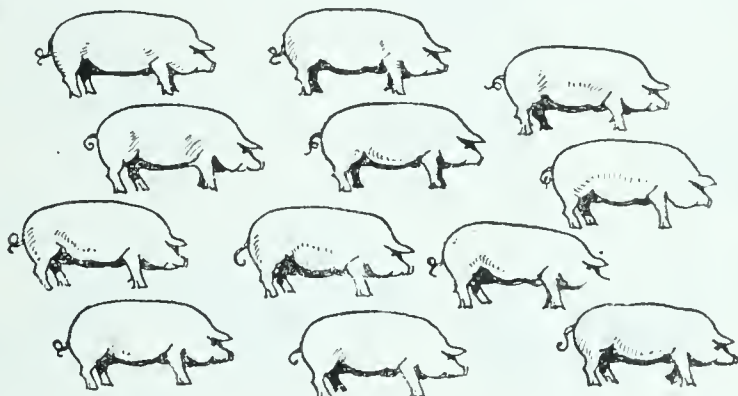
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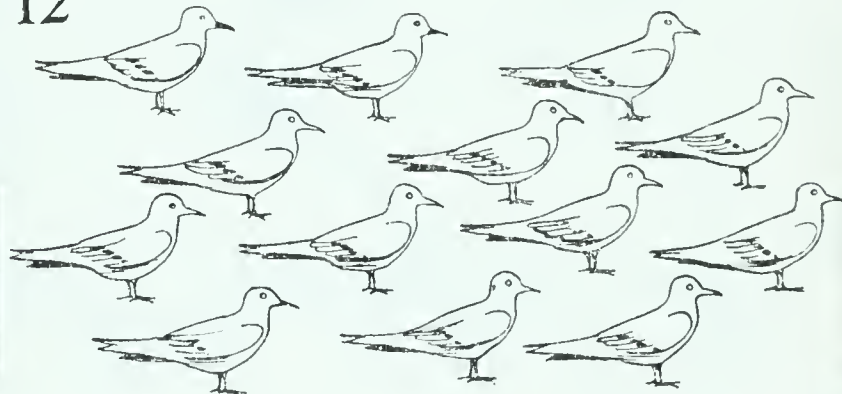
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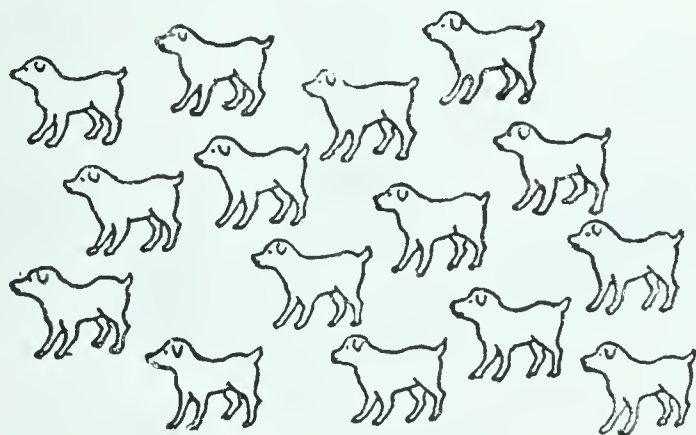
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12



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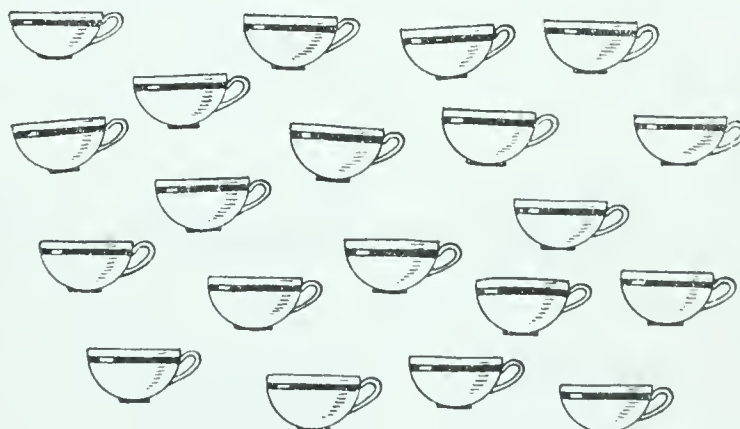
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17



18



S



GATES PRIMARY READING TEST

For Grade 1 and Grade 2 (First Half)

Type PPR. Paragraph Reading

TYPE PPR

FORM 2

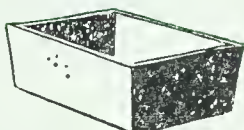
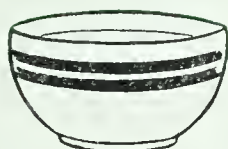


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525 West 120th Street, New York 27, N. Y. Copyright, 1958, by Arthur I. Gates

Write your name here.....

How old are you?.....When is your birthday?.....

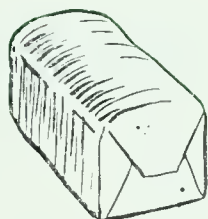
School.....Grade.....Date.....



1. Put an X on the ball.



3. Draw a line under the little book.



2. Put an X on the milk bottle.



4. Draw a line from the pig to the tree.

to the teacher: Detailed instructions for administering and scoring this test are given in the Manual (included in each test package).

Number tried.....(possible 26)

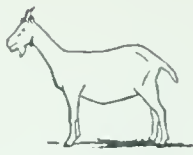
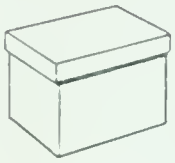
Raw score (number of sentences correct).....

Reading grade.....

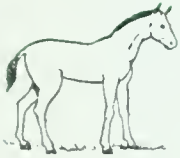
Reading age.....

Be sure to signal STOP at the end of 20 minutes.

Printed in U.S.A.



1. Put an X on the baby.



2. Put an X on the hat.



3. Draw a line under the big hen.



4. Draw a line under the black cat.



5. Put an X on the horse that is running a race.

3

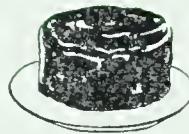
8

8

6. Draw a line under the eight that is big.



7. Draw a line under the kitten that is playing with a mitten.



8. Put an X on the piece of white cake.



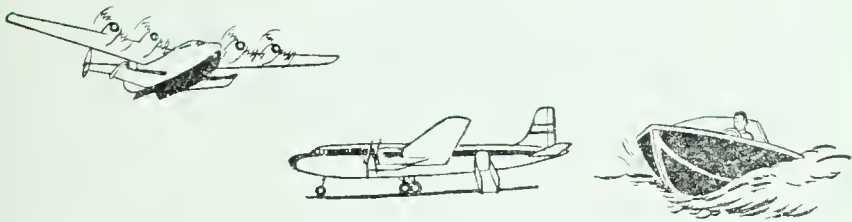
9. Put an X on the tree to which the robin is flying.



10. Draw a line under the doll on the chair.



11. Put an X on the boy who is fishing by the side of the brook.



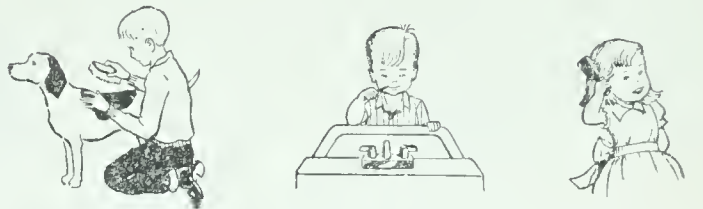
12. One of these airplanes is in the air. Put an X on the one that is flying.



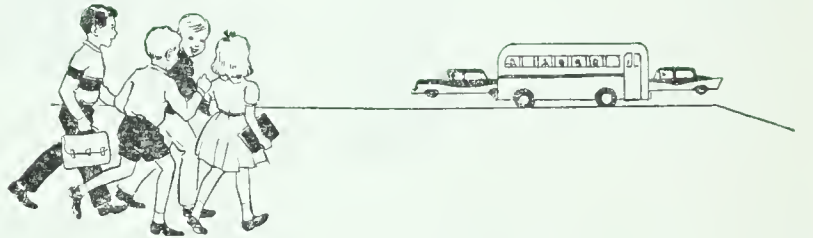
13. An elephant is bigger than a tiger, and a tiger is bigger than a monkey. Make an X on the elephant. It is the biggest.



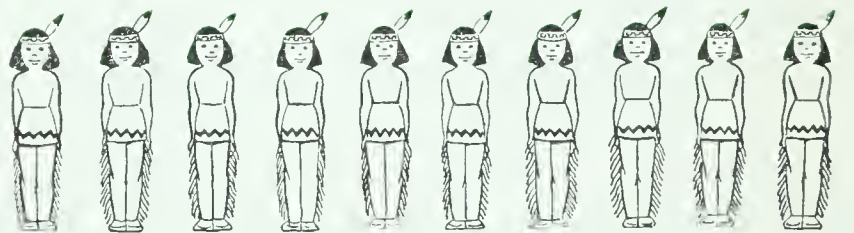
14. The pony likes oats to eat. Draw a line from the pony to the oats.



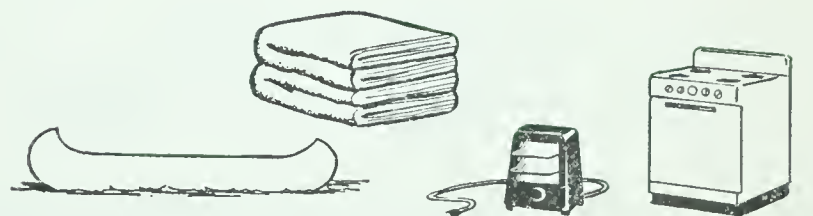
15. "Always brush your teeth after eating," said the teacher. Draw a line under the child who is doing what the teacher told him to do.



16. Every morning the children go to school. The bus stops for them at the corner. Draw a line under the thing in which they will ride.



17. Here are ten little Indians. Draw a line under the feet of five of these Indians.



18. When the children go to camp, they carry several blankets. Draw a line under what they always take to camp.



19. The children are waiting for grandfather. The train goes by them and comes to a stop. "There he is," they shout. Draw a line from him to the children.



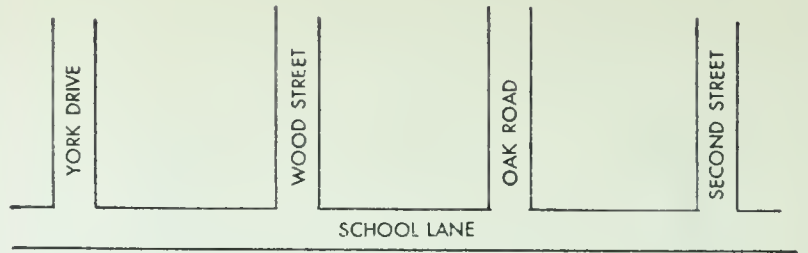
20. A boy wanted to send a letter by air mail. The postman told him he must buy an air-mail stamp. Draw a line from the stamp to the boy who is going to use it.



21. The ladder is leaning against the burning building. One fireman is climbing up. Draw a line from him to the place where you see some fire and smoke.



22. In the morning Father leaves for the office. He walks to the station to take the train. Look for the station in the picture. Draw a line under it.



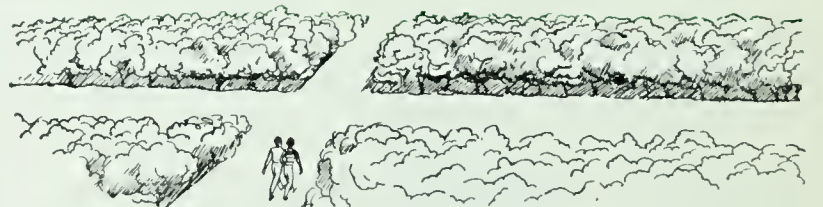
23. The bank is on School Lane between Wood Street and Oak Road. Put an X where the bank is.



24. A boy had gone fishing with his father. It was such fun to row out on the pond and fish. All of a sudden, the boy cried, "I have one, a big one!" and jerked at his line. Make an X on what the boy caught.



25. The race is about to begin. The boys are "ready" on their mark. They cannot start until the teacher blows the whistle. Put an X on what the teacher will blow.



26. A boy and his playmate were going to the woods. They were going to swim in the lake. Mother said, "Be sure to turn right at the crossing." Draw a line showing which way the boys should turn.

GATES PRIMARY READING TEST

For Grade 1 and Grade 2 (First Half)

TYPE PWR
FORM 2

Type PWR. Word Recognition



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Write your name here.....

How old are you?.....When is your birthday?.....

School.....Grade.....Date.....



did

egg

dog

two

3.

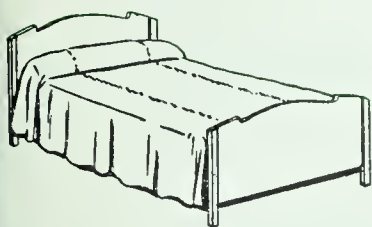


may

make

come

milk



be

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bag

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4.



horse

play

hose

house

the teacher: Detailed instructions for administering and scoring this test are given in the Manual (included in each test package).

Number correct..... Number wrong..... Raw score (correct minus $\frac{1}{3}$ wrong).....

Number tried.....(possible 48) Reading grade..... Reading age.....

Be sure to signal STOP at the end of 15 minutes.

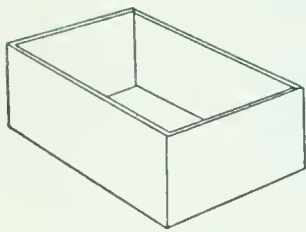
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cat cap



2. gold does
bell doll



3. hat box
boy fox



4. tree draw
once train



5. look book
bowl long



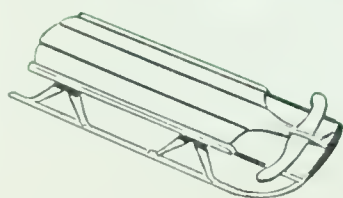
6. help some
horn home



7. moon mouse
soon nose



8. read sled
find sleep



9. brown cloud
clock clown



10. grow snow
bow slow



11. kind song
ring ride



12. many hair
hand land



13. spider harder
rooster corner



14. drink think
dress found



15. corn horn
coat soon



16. round money
mouth mouse

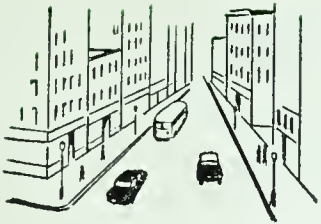


17.



raining river
riding eating

18.



street story
those count

19.



ear egg
ate arm

20.



tell walk
plant pull

21.



bad ran
not rat

22.



have draw
dress grass

23.



kind kite
king write

24.



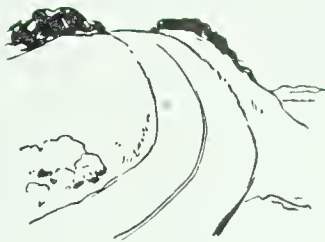
chair chick
hair child

25.



canoe candy
candle bubble

26.



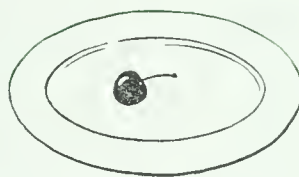
help hill
lion ring

27.



shoe ship
show close

28.



cherry cheer
cheese chapter

29.



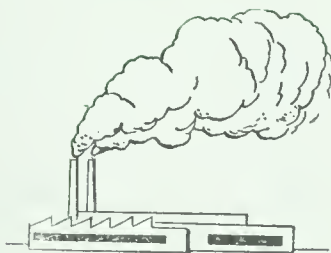
fear need
feed feel

30.



help bear
head road

31.



smell sell
small smoke

32.



rest near
not nest

33.



not

hat

hot

set

34.



dish

digs

wish

miss

35.

20

twice

twenty

pretty

twelve

36.



saw

pay

pan

paw

37.



camp

came

tramp

lamp

38.



family

fourth

found

forest

39.



cloth

cloud

loud

cluck

40.



there

three

free

throw

41.



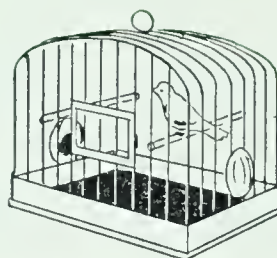
reach

ready

peach

beach

42.



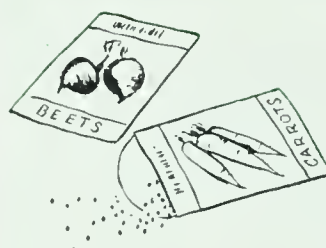
cape

cave

cage

page

43.



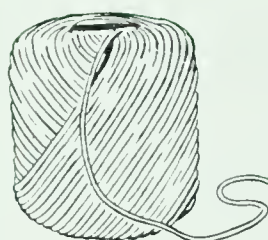
needs

sees

seats

seeds

44.



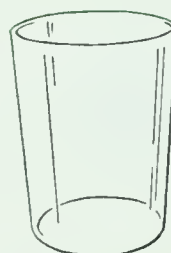
strike

strong

thing

string

45.



glad

glass

class

grass

46.



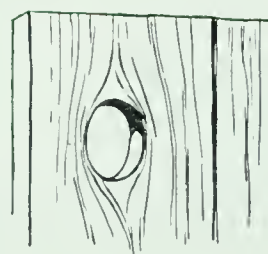
through

three

throw

crow

47.



hold

hole

rope

horn

48.



deep

dear

deer

bear

CALGARY SCHOOL BOARD

ACHIEVEMENT TEST IN ARITHMETIC

GRADE 1

TEST 1

SCORE

I. _____

II. _____

III. _____

IV. _____

V. _____

TOTAL _____

PUPIL'S NAME.....AGE.....YEARS.....MOS.

SCHOOL.....TEACHER.....DATE.....19...

1.

A. Sample

35	17	21
----	----	----

(1)

36	25	49
----	----	----

(2)

92	72	36
----	----	----

(3)

195	131	167
-----	-----	-----

(4)

238	500	489
-----	-----	-----

(5)

1035	1335	1435
------	------	------

B. Sample

34	42	16
----	----	----

(1)

13	36	41
----	----	----

(2)

45	43	98
----	----	----

(3)

126	162	131
-----	-----	-----

(4)

620	431	212
-----	-----	-----

(5)

1240	1050	1620
------	------	------

2:

Sample:

_____ 45 _____

- (1) _____ 14 _____
- (2) _____ 28 _____
- (3) _____ 66 _____
- (4) _____ 141 _____
- (5) _____ 290 _____

3. A.

Sample:

6 tens and 4 ones = 64

- (1) 1 ten and 1 one =
- (2) 3 tens and 6 ones =
- (3) 7 tens and 0 ones =
- (4) 1 hundred and 3 tens and 8 ones =
- (5) 3 hundreds and 0 tens and 5 ones =

3. B.

Sample:

28 = 2 tens and 8 ones

- (1) 16 =ten andones
- (2) 34 =tens and.....ones
- (3) 53 =tens and.....ones
- (4) 127 =hundred.....tens.....ones
- (5) 206 =hundreds.....tens.....ones

4.



5. Sample:

one _____

three _____

ten _____

two _____

nine _____

four _____

eight _____

seven _____

fifteen _____

twenty _____

sixty-six _____

APPENDIX D

SAMPLE ANSWER SHEET FOR STEP TESTS

Publisher's ☐ Local ☐ Fall ☐ Spring ☐
Grade _____
Other (specify) _____

No. Right _____
Converted Score _____
%ile Band _____

Science _____
Mathematics _____
Social Studies _____
Listening _____
Writing _____
Reading _____
FORM

DO NOT WRITE HERE

NAME (PRINT) LAST FIRST MIDDLE
AGE YEARS MONTHS GRADE OR CLASS
SCHOOL
TODAY'S DATE MONTH DAY YEAR
1. _____
2. _____
3. _____

STEP • Sequential Tests of Educational Progress • STEP

Sample
0 A B C D
0 ☒ ☐ ☐ ☐

PART ONE									
	A	B	C	D		A	B	C	D
1					21				
	E	F	G	H		E	F	G	H
2					22				
	A	B	C	D		A	B	C	D
3					23				
	E	F	G	H		E	F	G	H
4					24				
	A	B	C	D		A	B	C	D
5					25				
	E	F	G	H		E	F	G	H
6					26				
	A	B	C	D		A	B	C	D
7					27				
	E	F	G	H		E	F	G	H
8					28				
	A	B	C	D		A	B	C	D
9					29				
	E	F	G	H		E	F	G	H
10					30				
↓					↓				
11					31				
	E	F	G	H		E	F	G	H
12					32				
	A	B	C	D		A	B	C	D
13					33				
	E	F	G	H		E	F	G	H
14					34				
	A	B	C	D		A	B	C	D
15					35				
	E	F	G	H		E	F	G	H
16					36				
	A	B	C	D		A	B	C	D
17					37				
	E	F	G	H		E	F	G	H
18					38				
	A	B	C	D		A	B	C	D
19					39				
	E	F	G	H		E	F	G	H
20					40				

PART TWO									
	A	B	C	D		A	B	C	D
1					21				
	E	F	G	H		E	F	G	H
2					22				
	A	B	C	D		A	B	C	D
3					23				
	E	F	G	H		E	F	G	H
4					24				
	A	B	C	D		A	B	C	D
5					25				
	E	F	G	H		E	F	G	H
6					26				
	A	B	C	D		A	B	C	D
7					27				
	E	F	G	H		E	F	G	H
8					28				
	A	B	C	D		A	B	C	D
9					29				
	E	F	G	H		E	F	G	H
10					30				
↓					↓				
11					31				
	E	F	G	H		E	F	G	H
12					32				
	A	B	C	D		A	B	C	D
13					33				
	E	F	G	H		E	F	G	H
14					34				
	A	B	C	D		A	B	C	D
15					35				
	E	F	G	H		E	F	G	H
16					36				
	A	B	C	D		A	B	C	D
17					37				
	E	F	G	H		E	F	G	H
18					38				
	A	B	C	D		A	B	C	D
19					39				
	E	F	G	H		E	F	G	H
20					40				

YOU MAY FIND MORE ANSWER SPACES THAN QUESTIONS FOR THE PARTS OF THIS TEST. JUST LEAVE THE EXTRA ANSWER SPACES BLANK.

B29805